

Herz, Kreislauf, Blut- und Lymphgefäße

Dr. Emese Pálfi / Dr. Tamás Ruttkay

Semmelweis Universität

Anatomisches, Histologisches und Embryologisches Institut

Großer und kleiner Kreislauf

Kleiner/Lungen- Kreislauf:

rechte Kammer – Lungenarterien –
Lungenkapillaren –
Lungenvenen – linker Vorhof

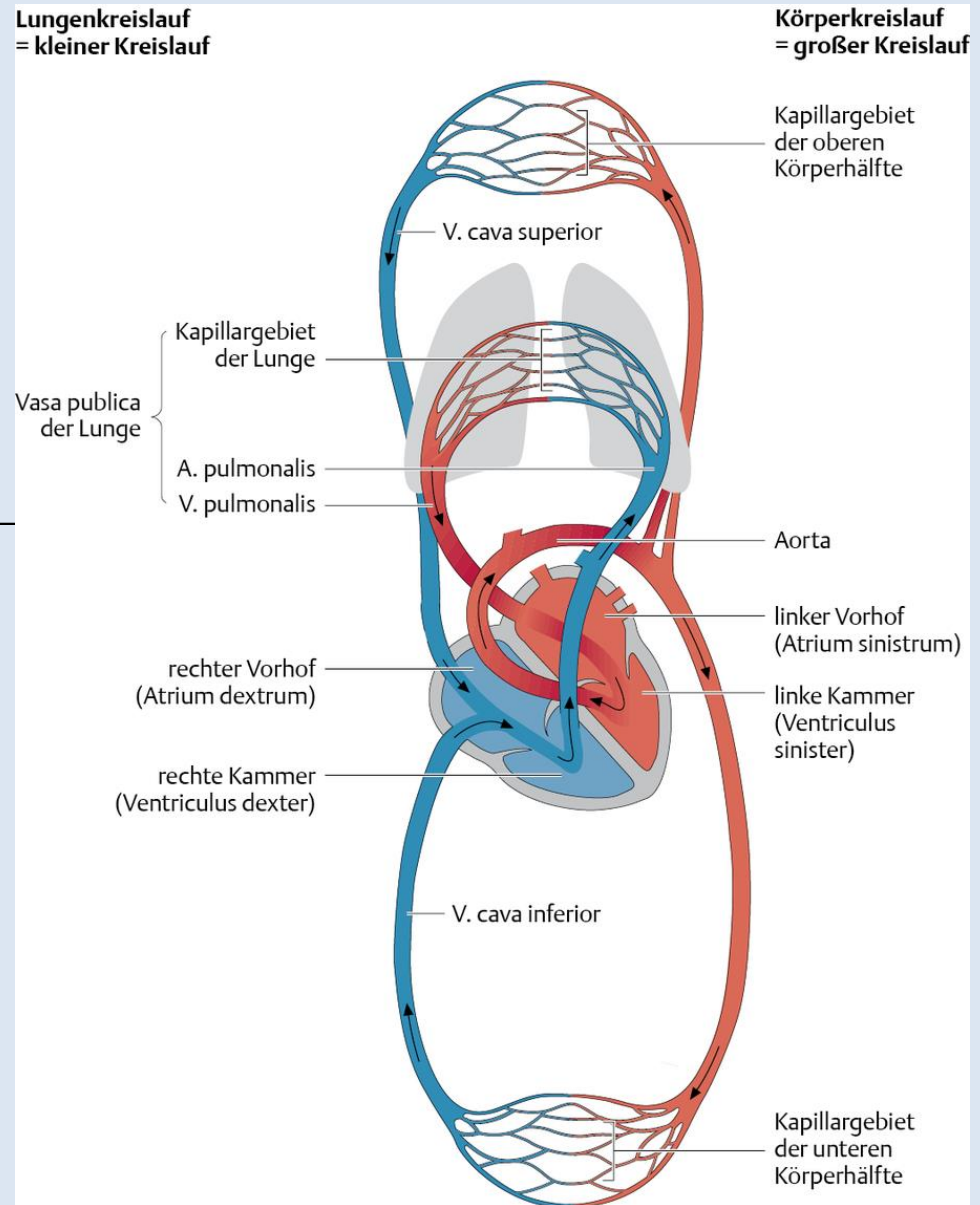
Großer/Körper Kreislauf:

linker Kammer – Aorta – Arterien –
Kapillaren in den verschiedenen Geweben –
Venen – rechter Vorhof

Gewebsflüssigkeit:

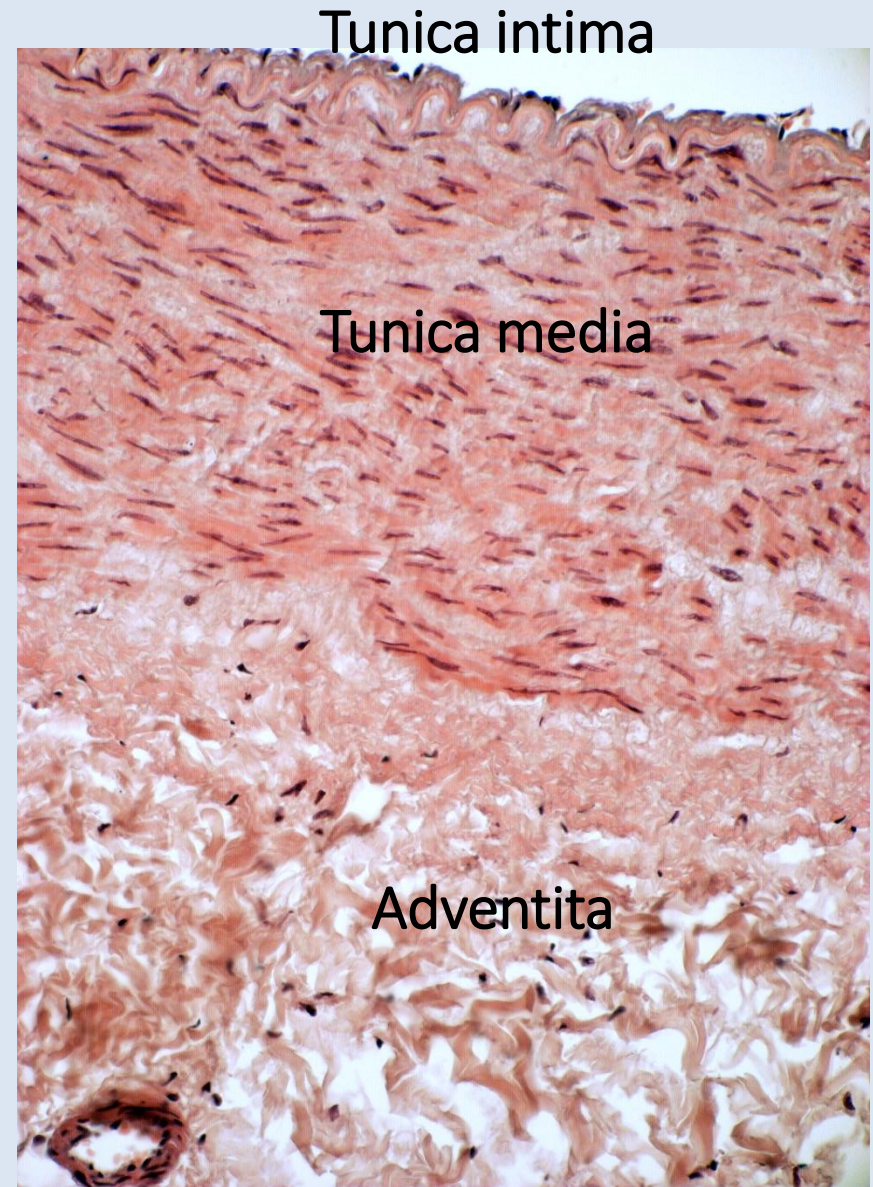
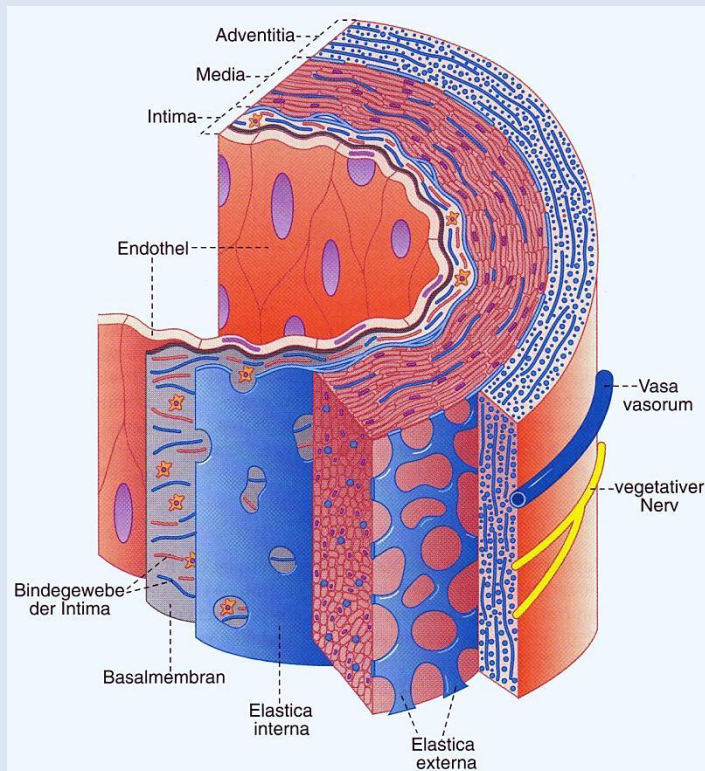
Lymphgefäße

(Arterien: vom Herz weg
Venen: ins Herz rein)



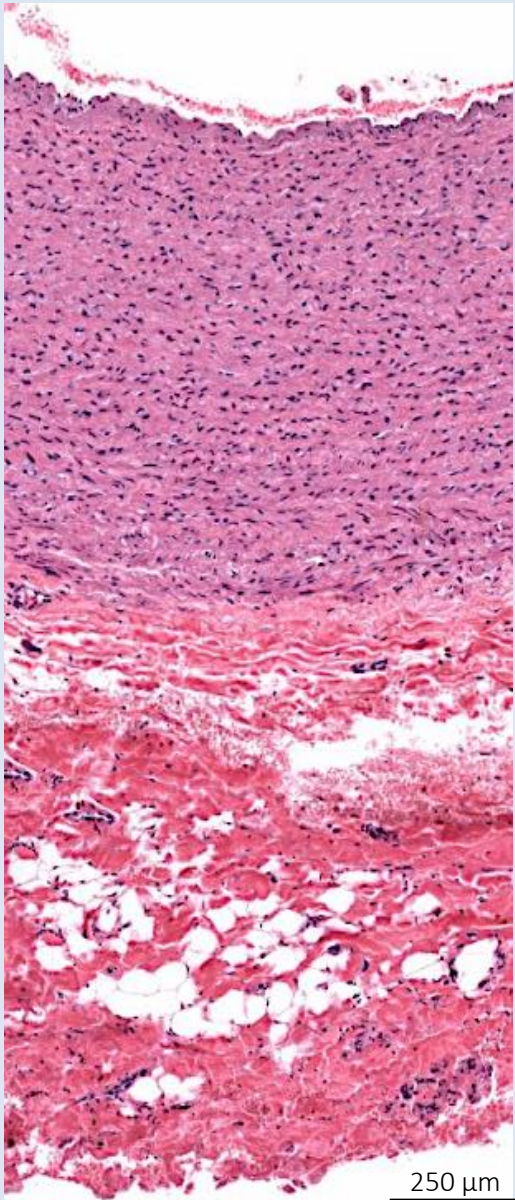
Histologie der Blutgefäße

- *Tunica intima*
- *Tunica media*
- *Tunica adventita*

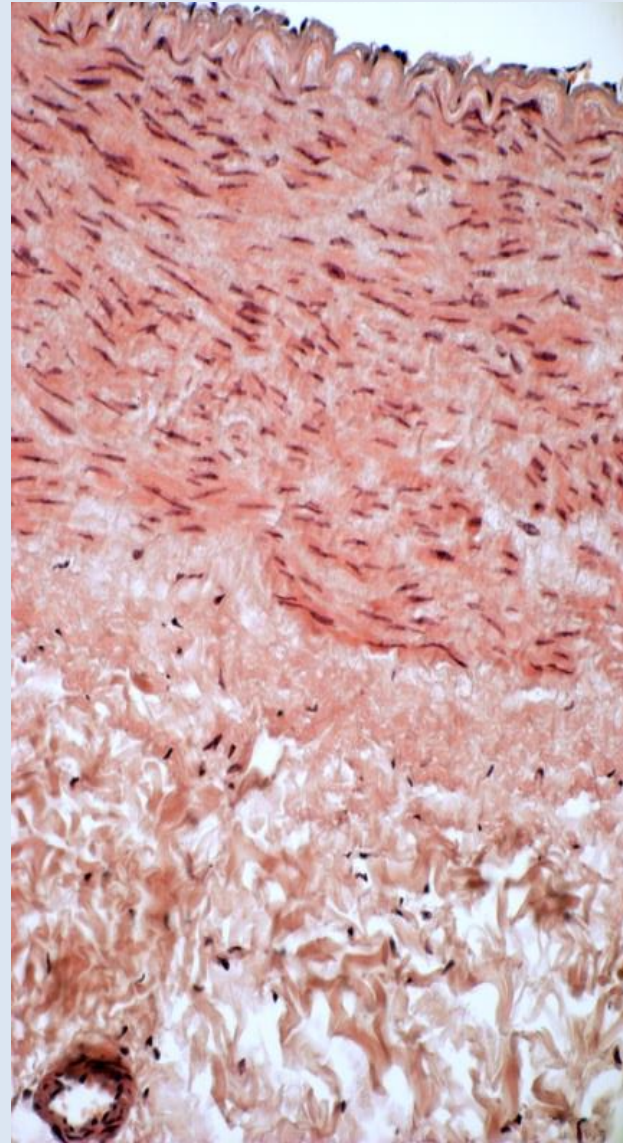


25 μ m

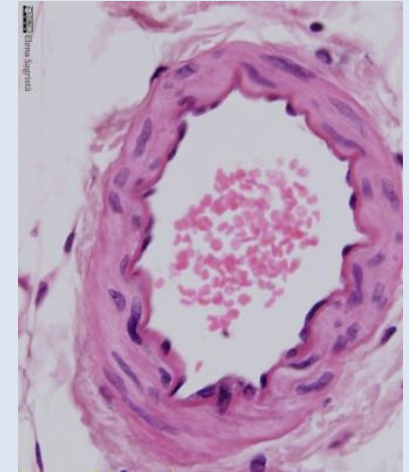
Elastische Arterie



Muskuläre Arterie



Arteriöle



Kapillar

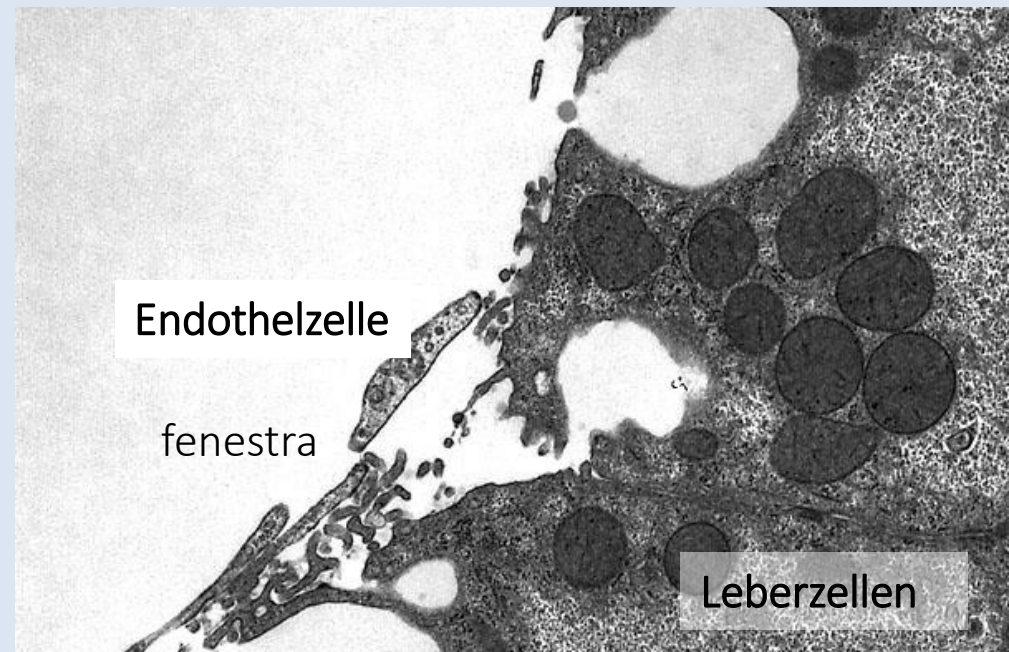
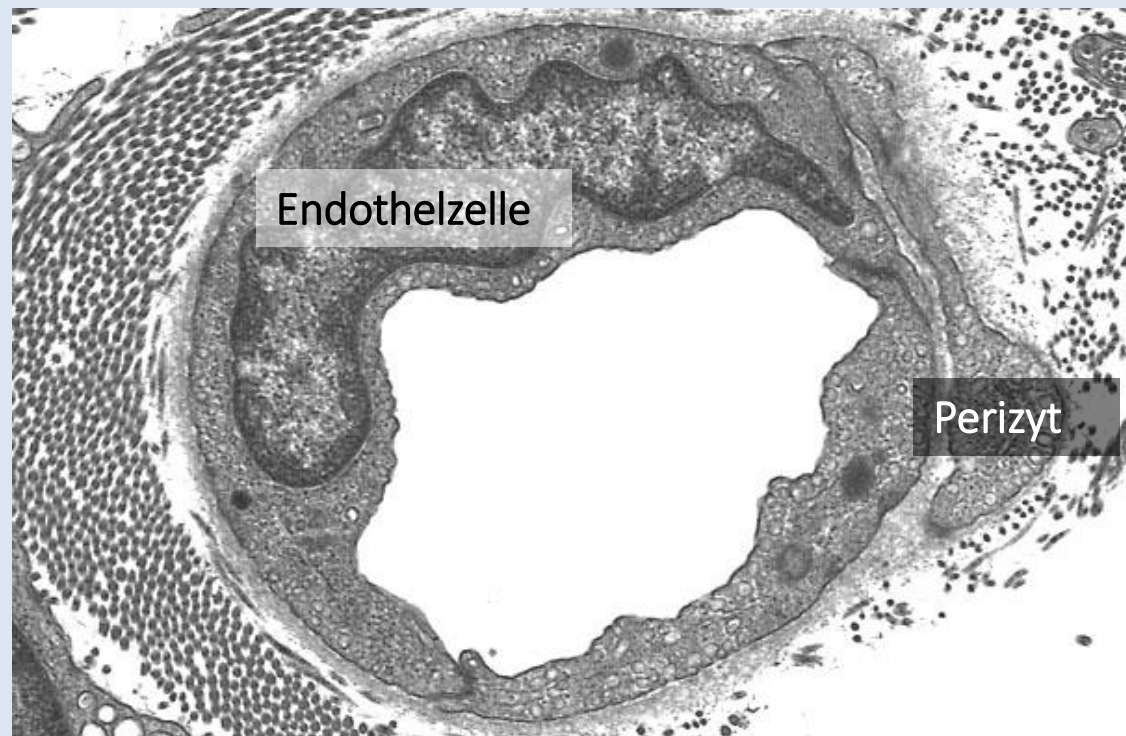


Tunica intima

Endothel

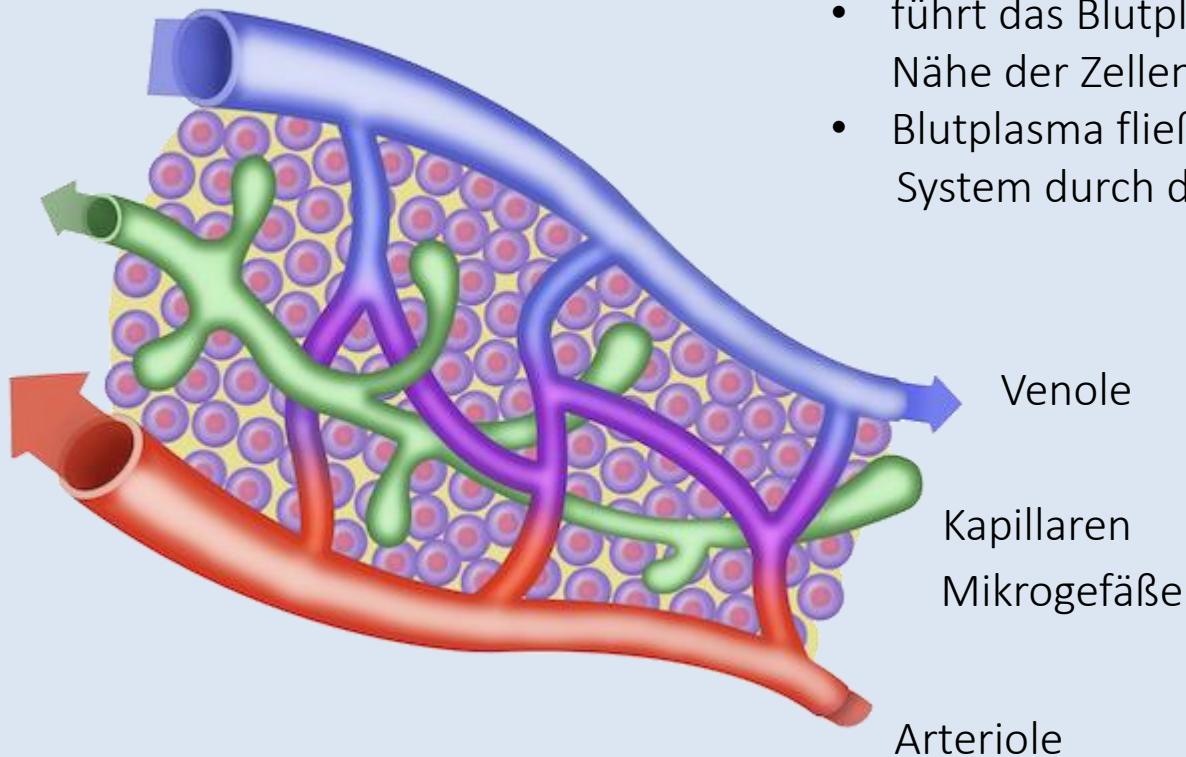
=einschichtiges Plattenepithel

- kontinuierlich
- fenestriert

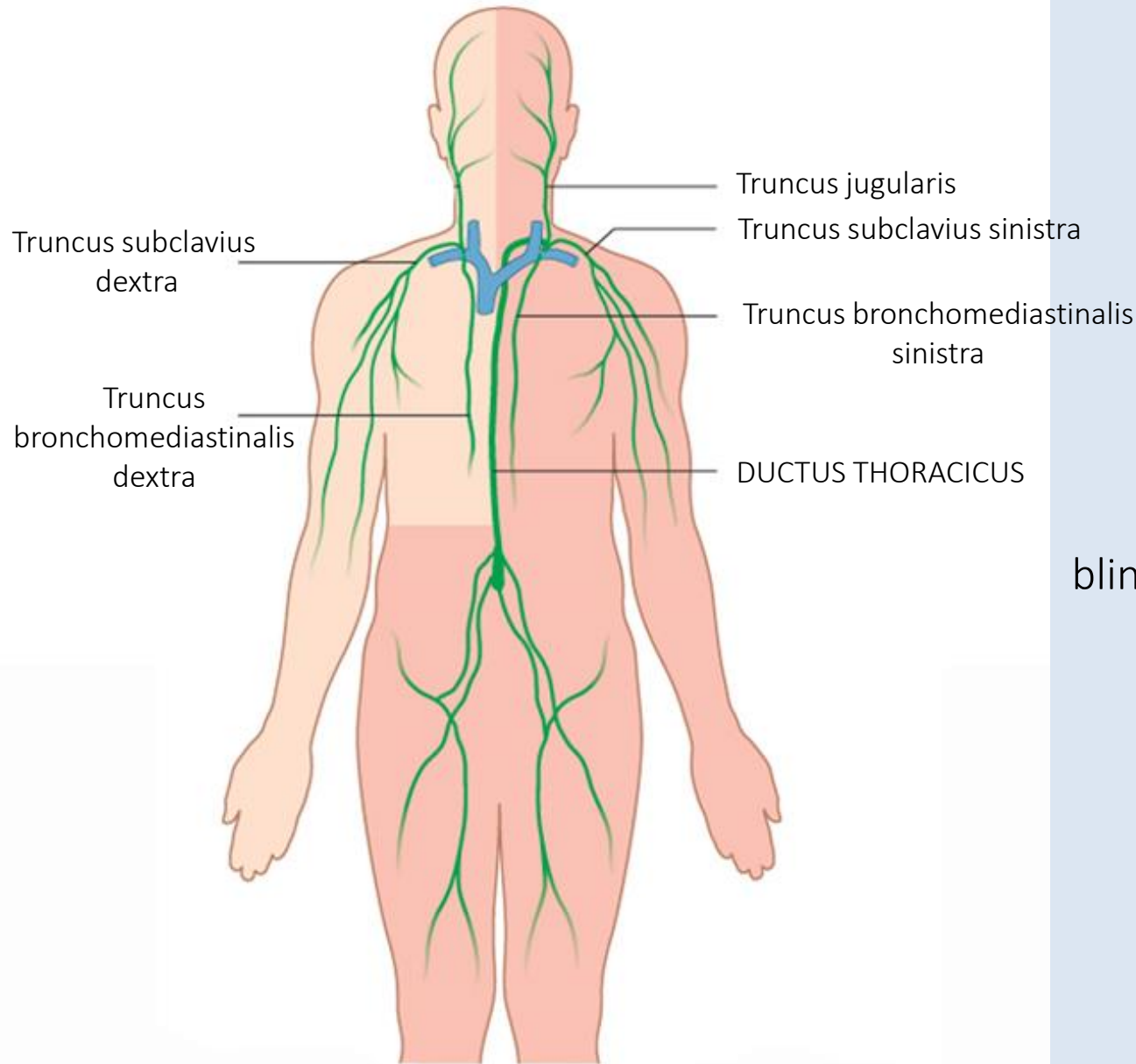


Mikrozirkulation

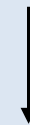
- Verbindung zwischen dem arteriellen und dem venösen System
- führt das Blutplasma in die unmittelbare Nähe der Zellen
- Blutplasma fließt zurück in das venöse System durch die Lymphgefäße



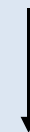
Lymphkreislauf



blind beginnende Lymphgefäße

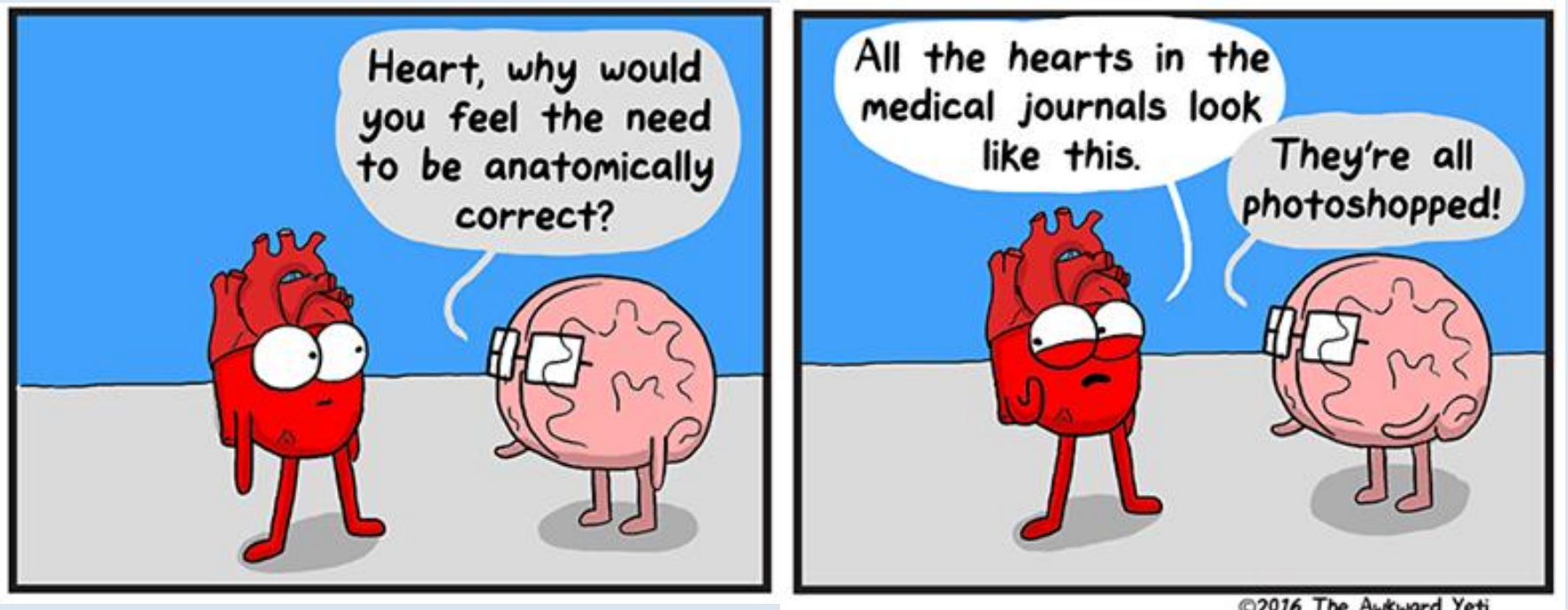


Lymphknoten



Venöses System

Das Herz

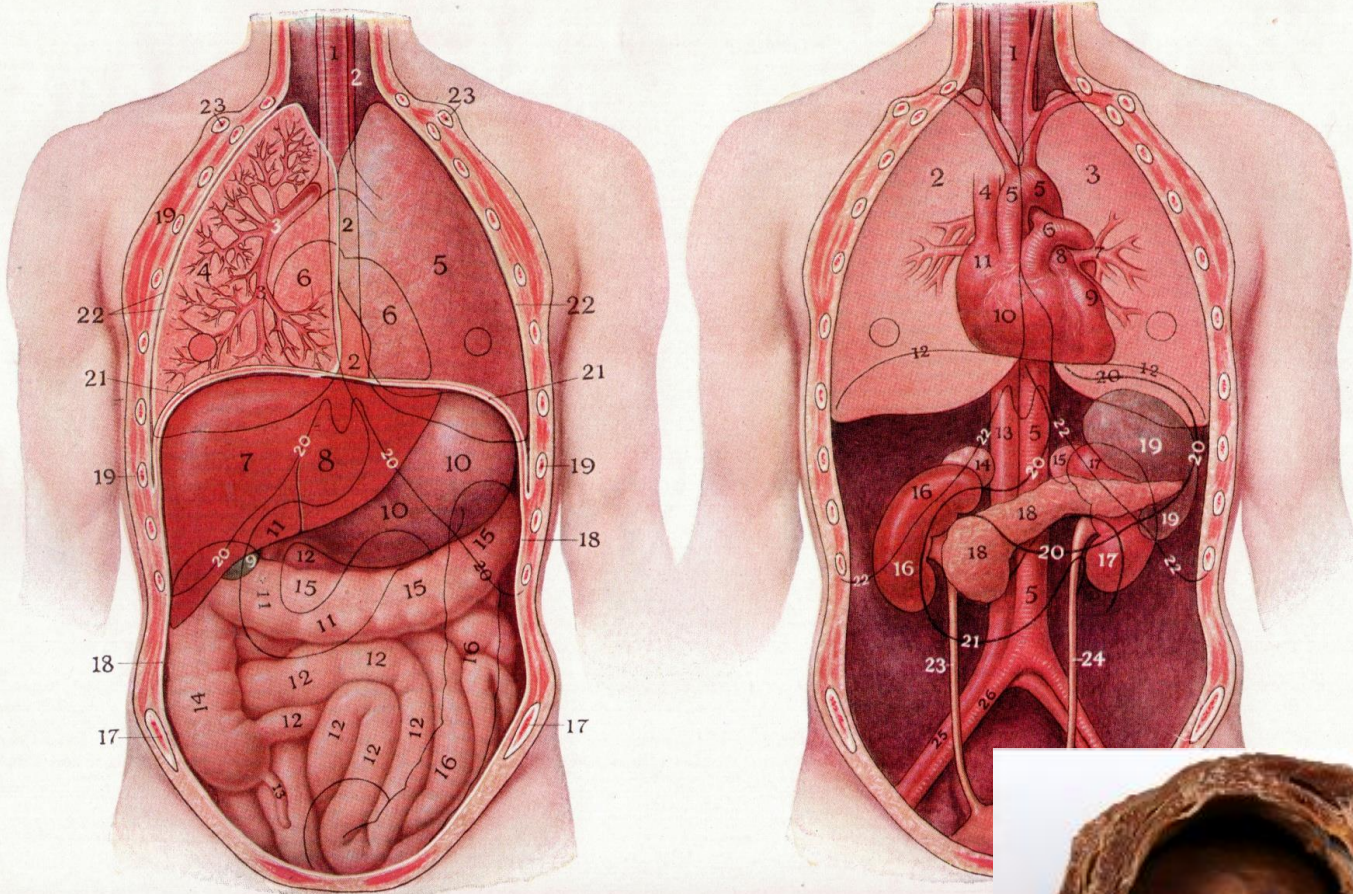


Herzzyklus:

Systole – die Entleerung der gefüllten Kammer durch Kontraktion

Diastole – die Füllung der entleerten Kammer in der Erschlaffung

Lage des Herzens



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ABDOMEN AND CHEST



Mediastinum cardiacum

Mittelständiges Bindegewebsort des
Brustraumes

Herzbeutel (*Pericardium*)

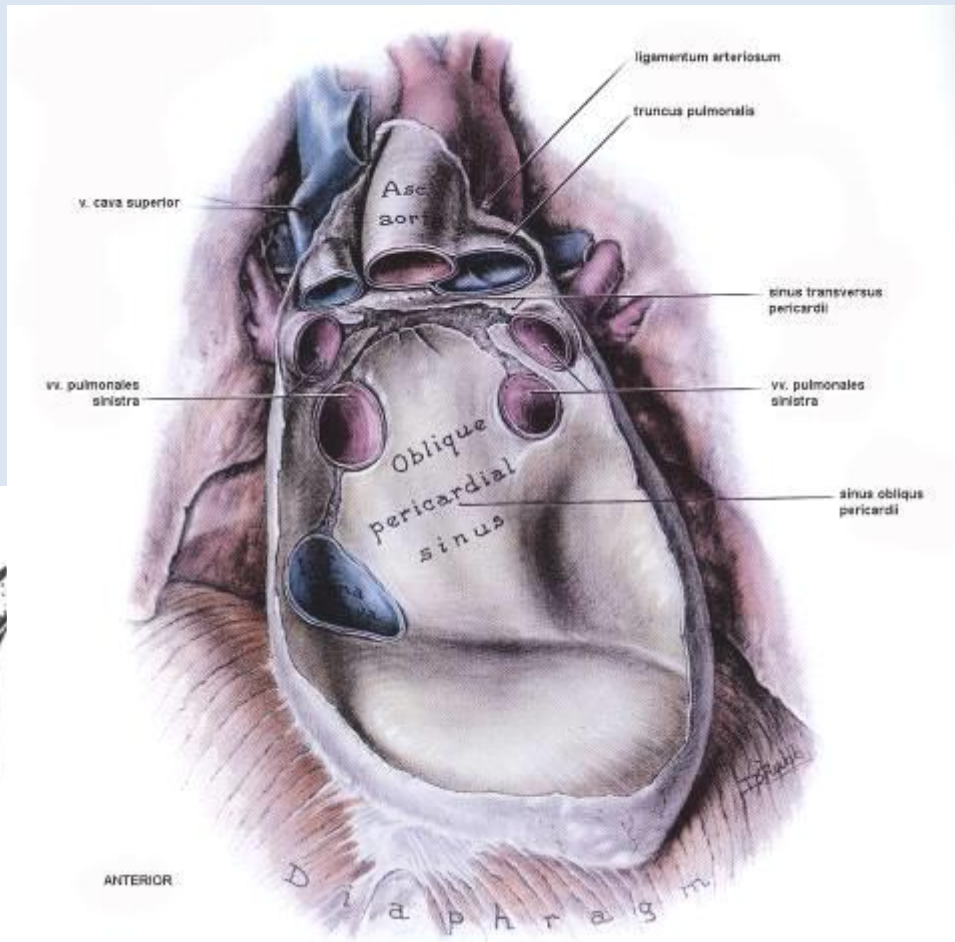
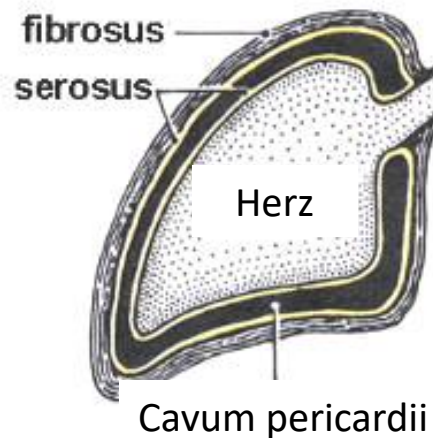
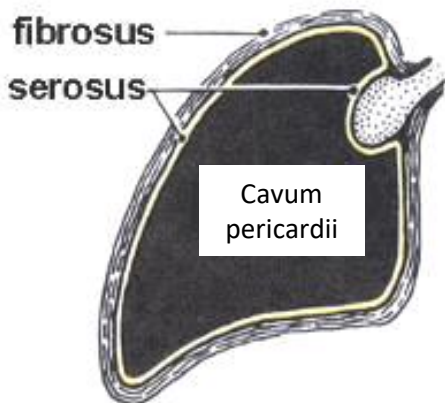
Parietales Blatt (*Pericardium parietale*)

Seröse Höhle (*Cavum pericardii*)

Viscerales Blatt (*Pericardium viscerale*) = Epicardium

Flüssigkeit (*Liquor pericardii*): 10-15 ml

Befestigung des Herzens: große Venen – Kopf,
obere Extremität, Leber, Lungen



Schichten des Herzens

Epicardium

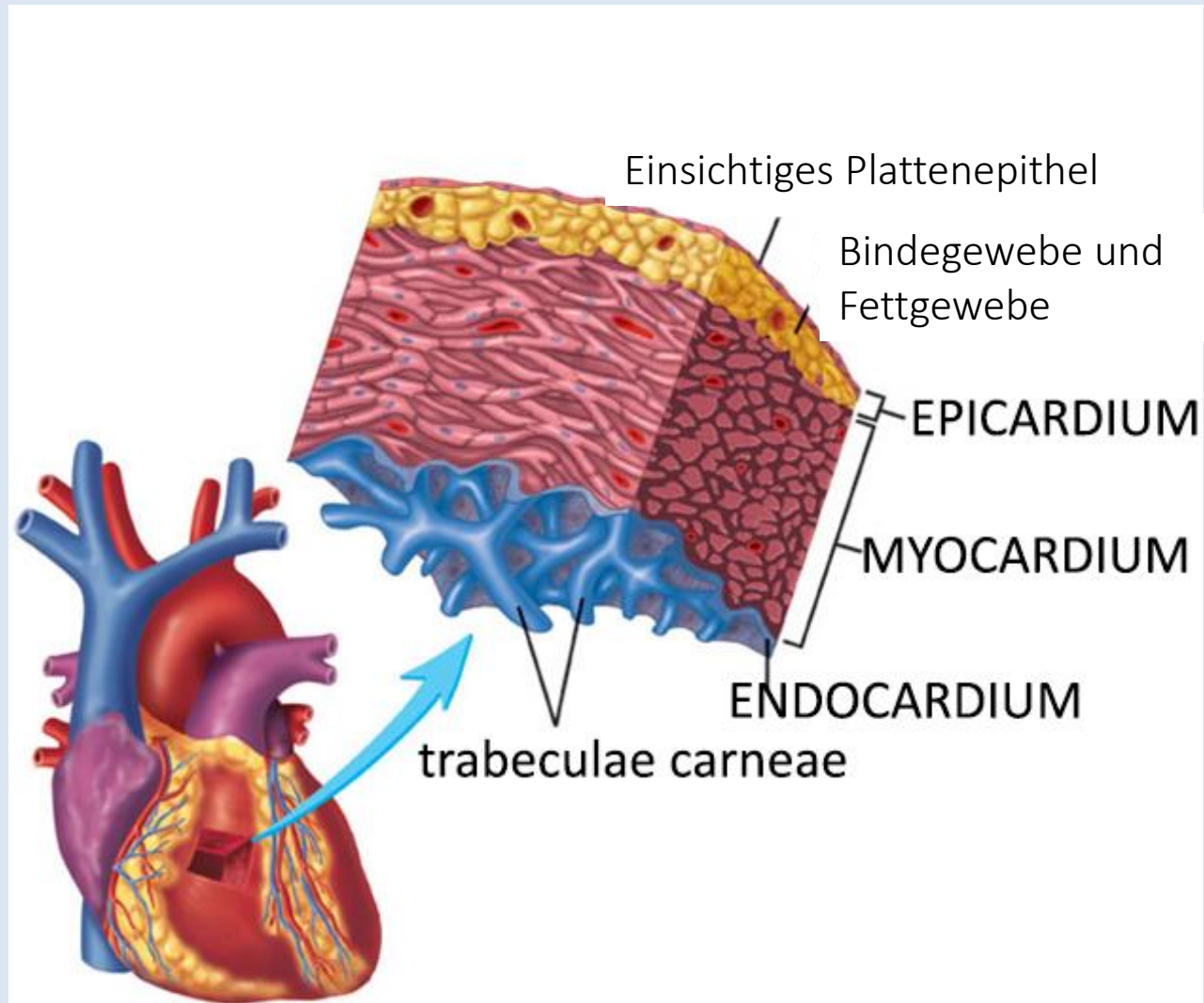
Pericardium viscerale
subepicardiales Fett

Myocardium

Herzmuskulatur

Endocardium

Endothel



Herzmuskelgewebe

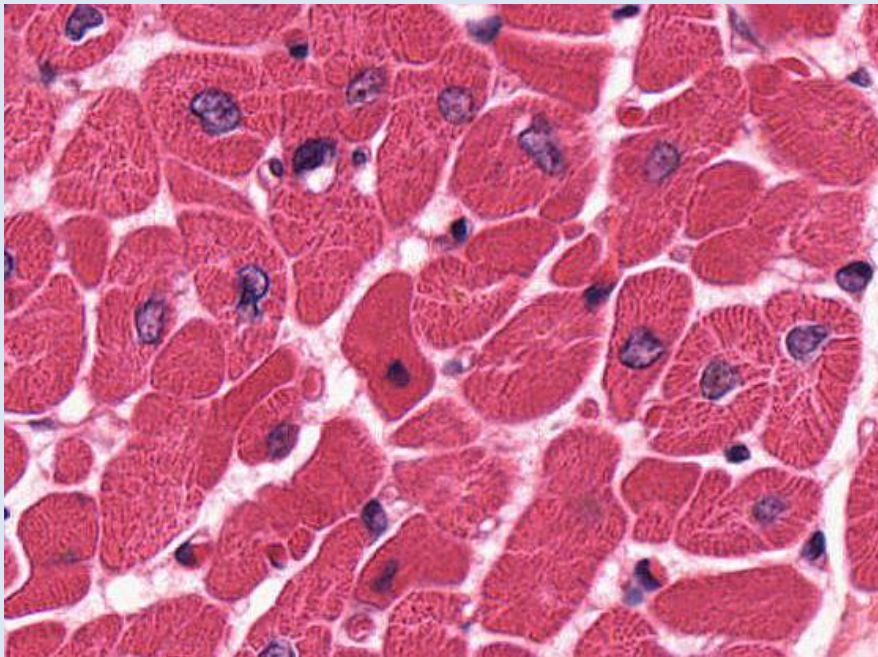
Arbeitsmuskulatur + Zellen der Erregungsleitung (Purkinje-Fasern)

Kardiomyozyten

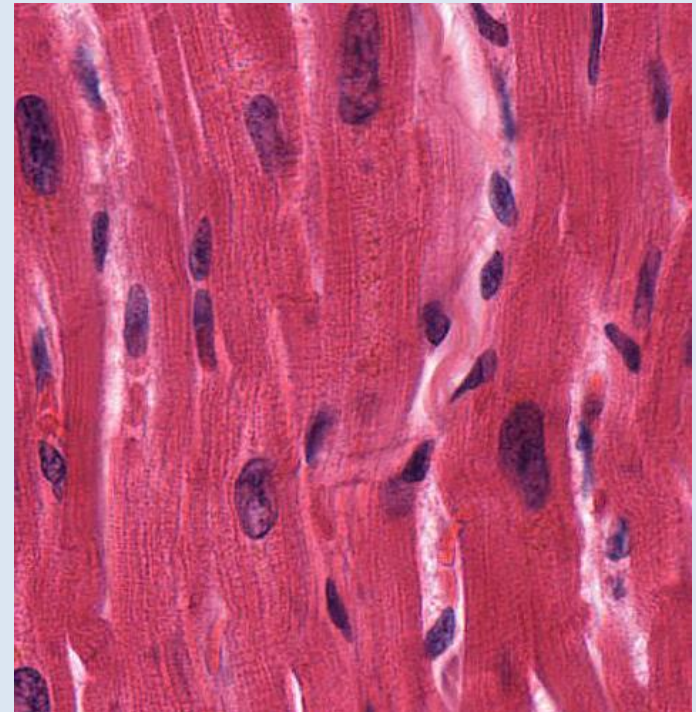
Rundförmige Zellkern

Zellgrenze zu Nachbarzellen: Glanzstreifen (Eberth-Linie/Discus intercalaris)

Regenerierung (limitiert)



25 μ m



25 μ m

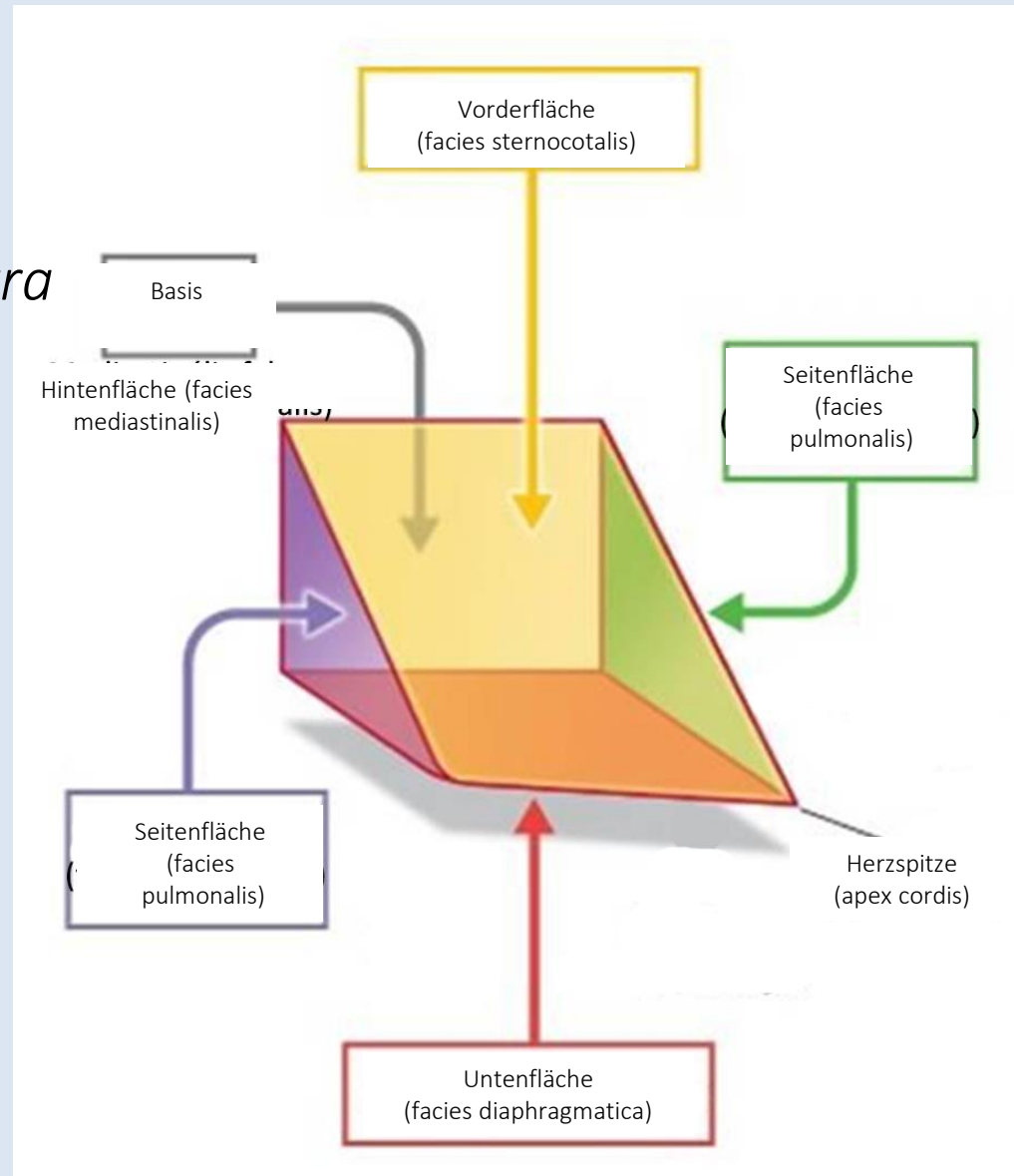
Gestalt des Herzens

Facies sternocostalis

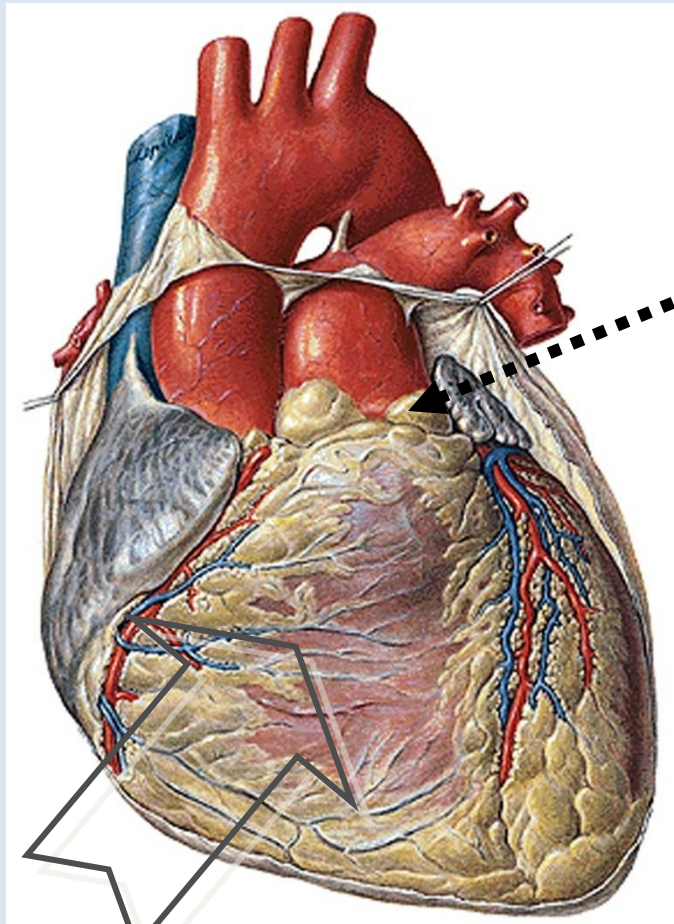
Facies diaphragmatica

Facies pulmonalis dextra et sinistra

Facies mediastinalis



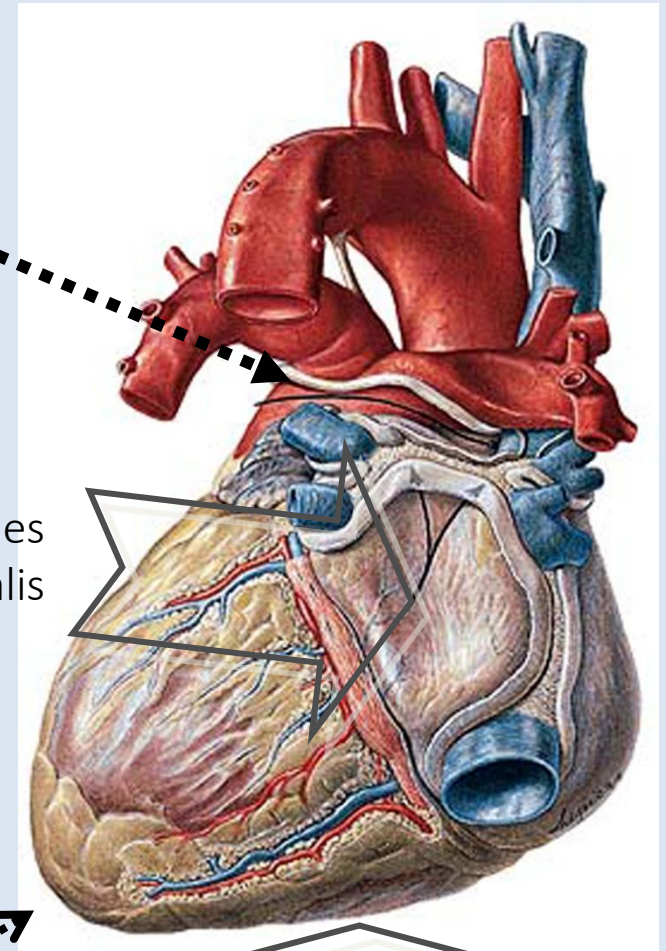
Oberflächen des Herzens



Facies sternocostalis

Basis cordis

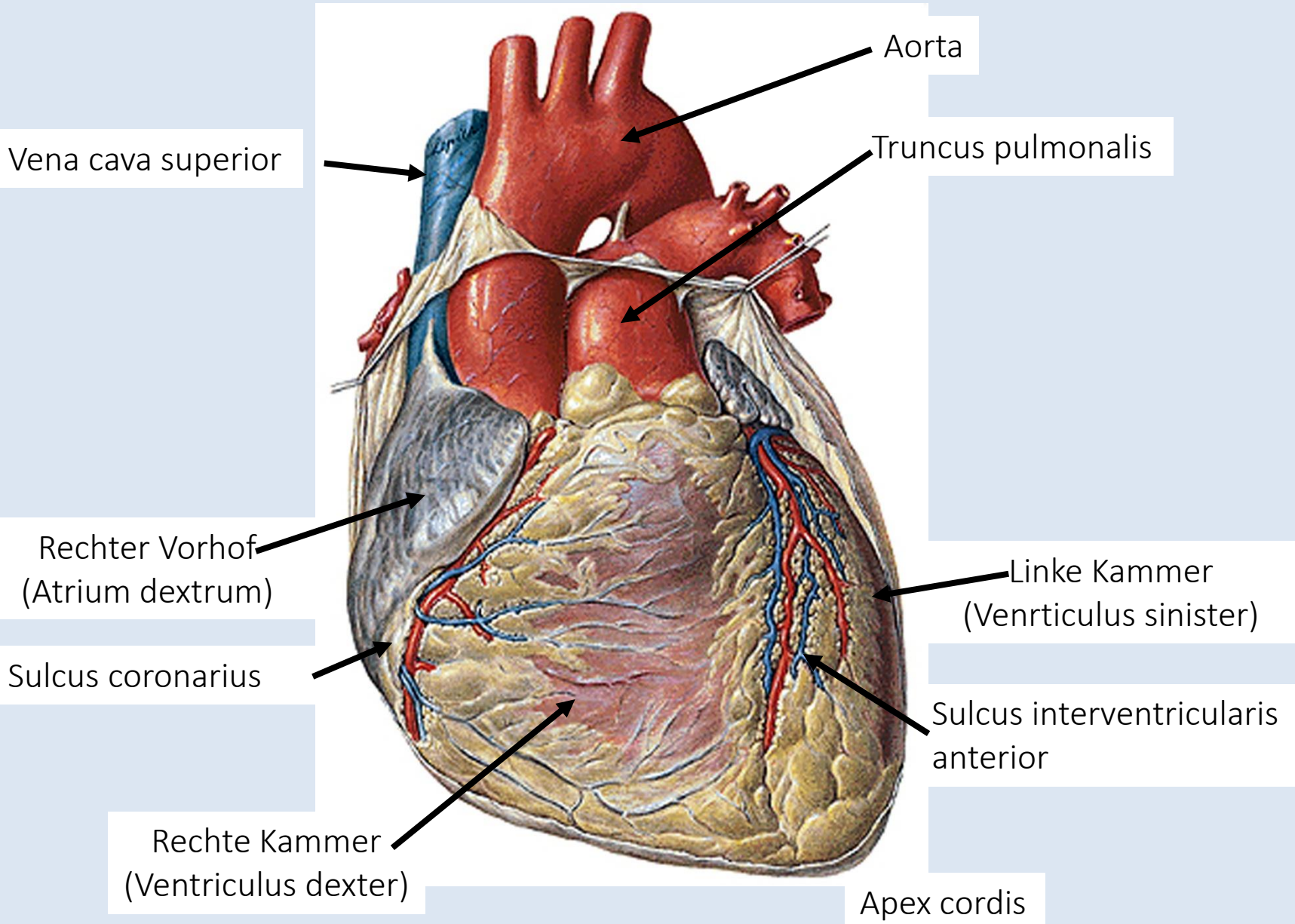
Apex cordis



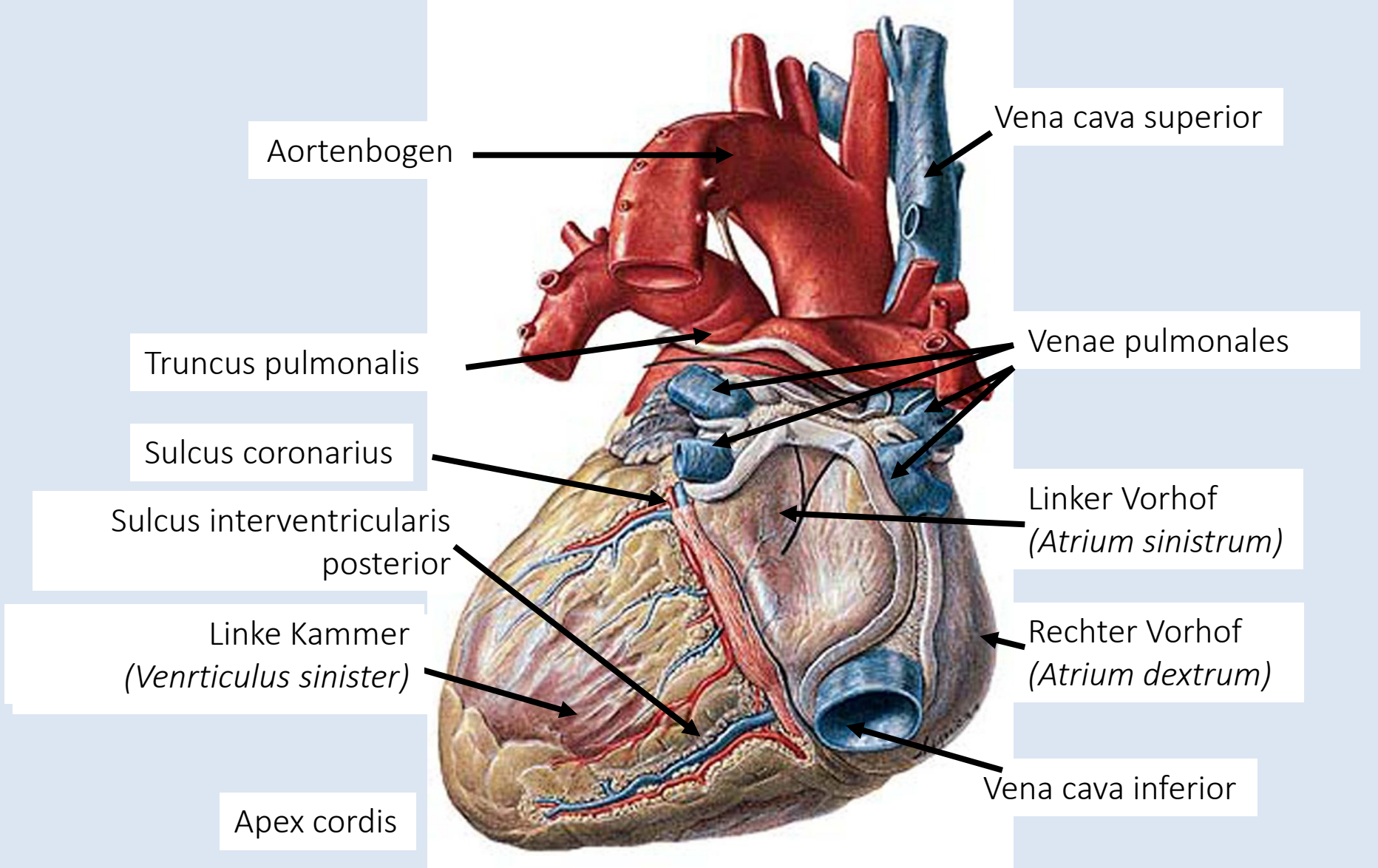
Facies mediastinalis

Facies diaphragmatica

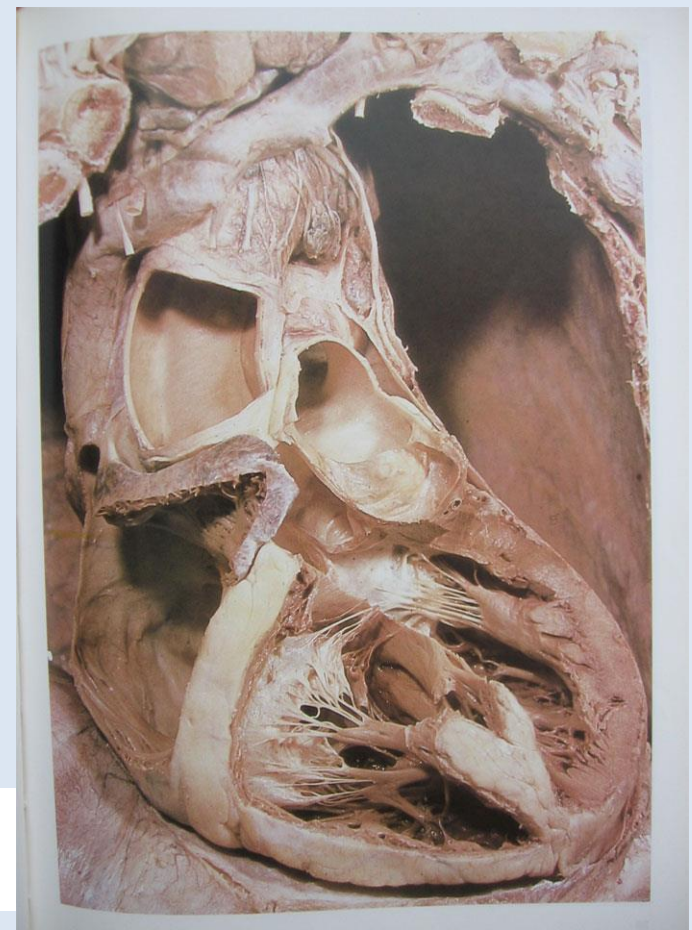
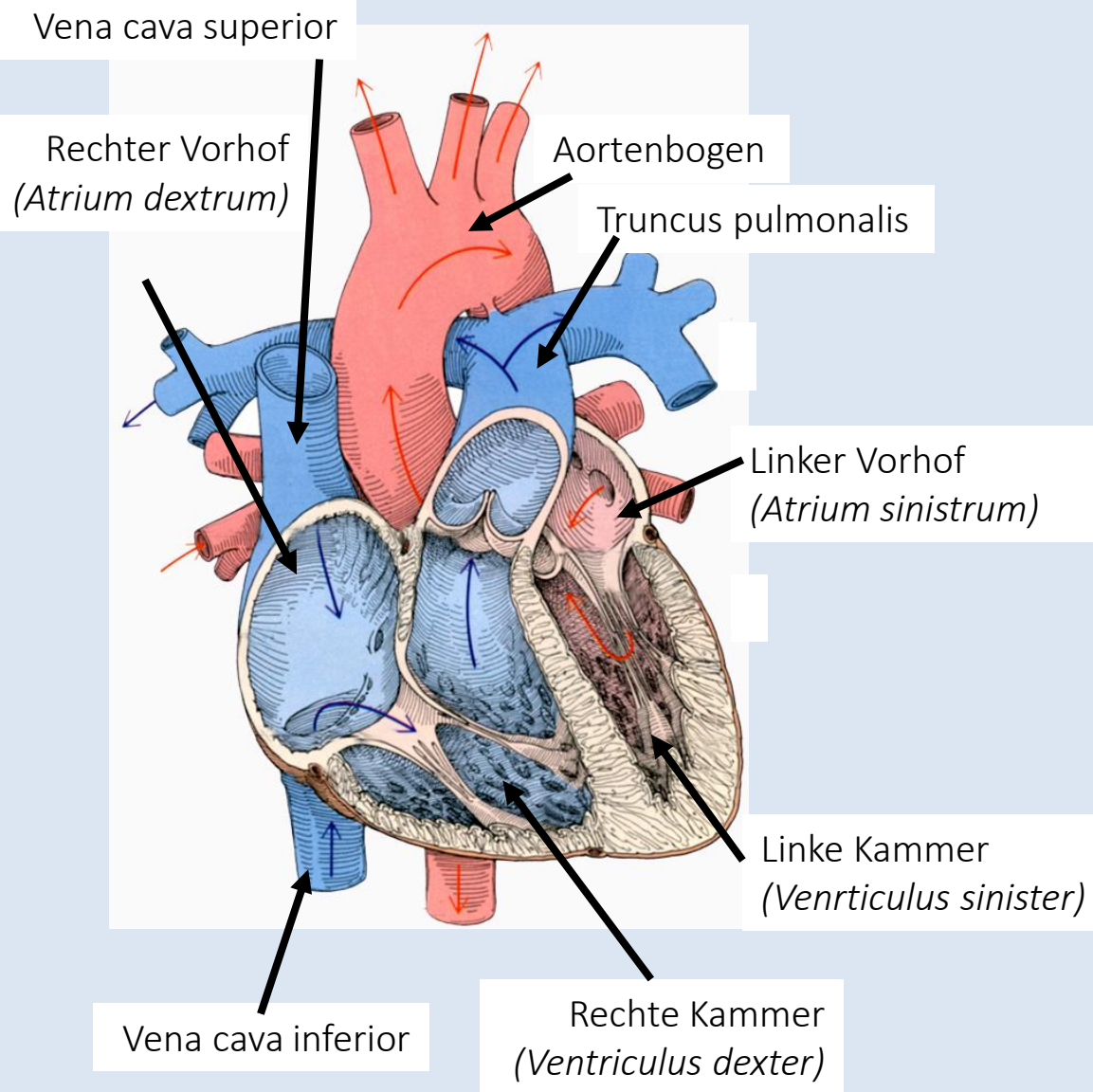
Facies sternocostalis



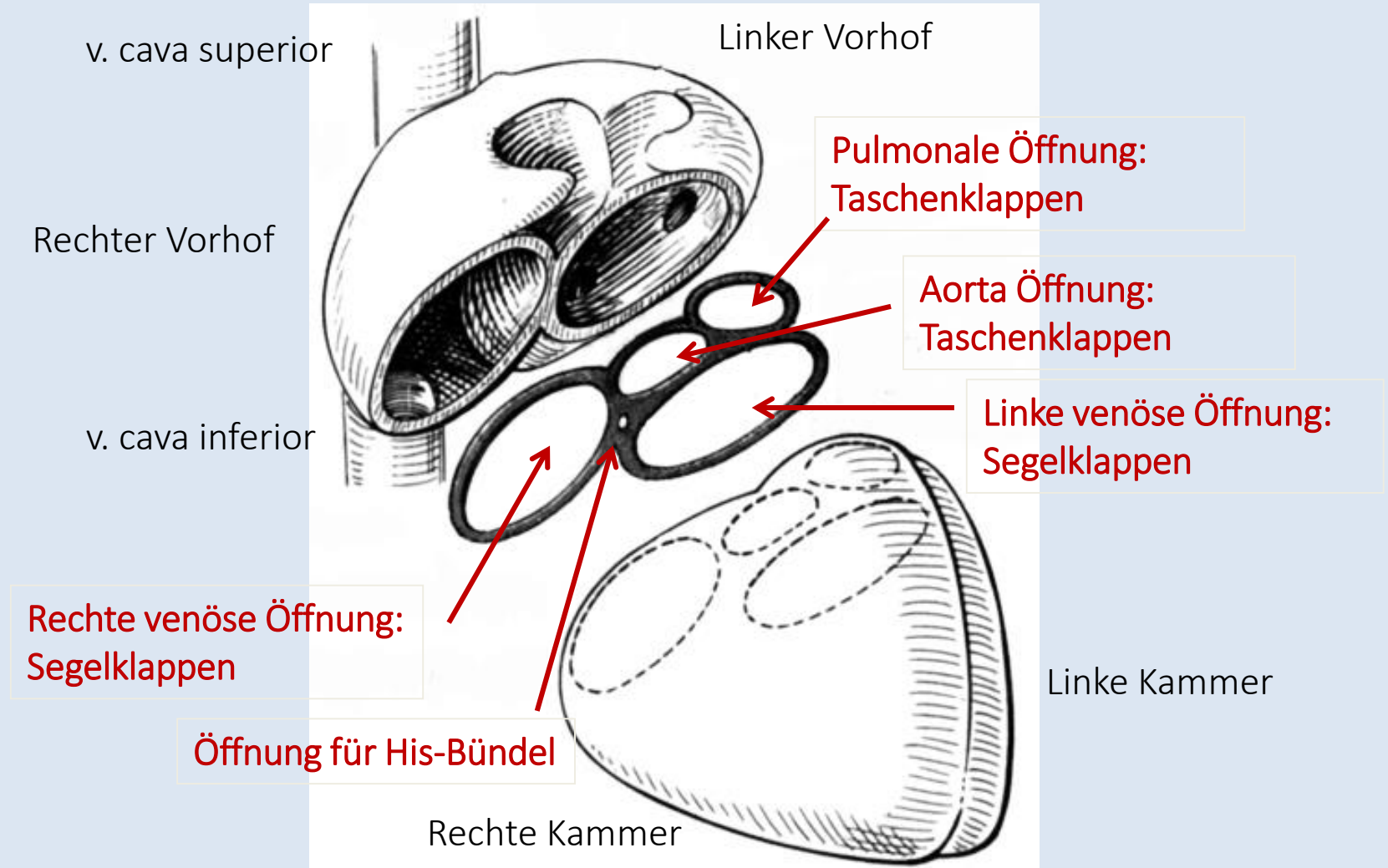
Facies mediastinalis, facies diaphragmatica



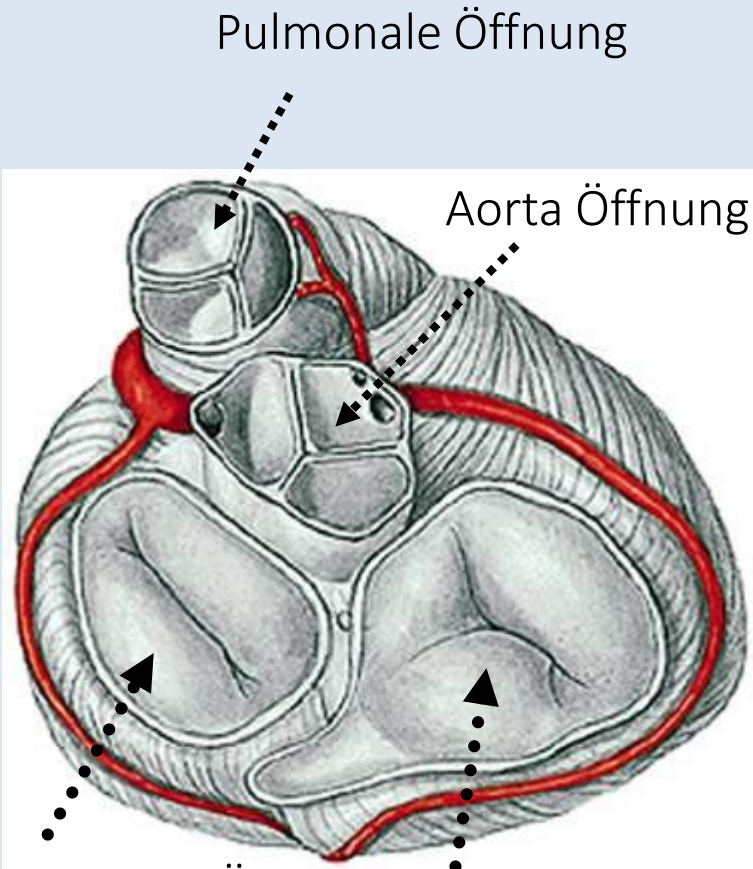
Innenräume des Herzens



Herzskelett



Herzklappen

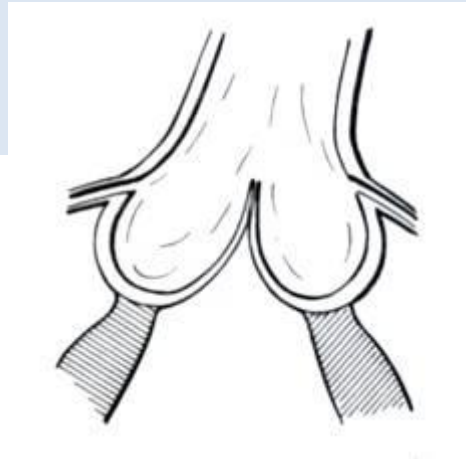


Pulmonale Öffnung

Aorta Öffnung

Linke venöse Öffnung

Rechte venöse Öffnung



Taschenklappen
(*Valvulae semilunares*)

- Aorta
- Truncus pulmonalis

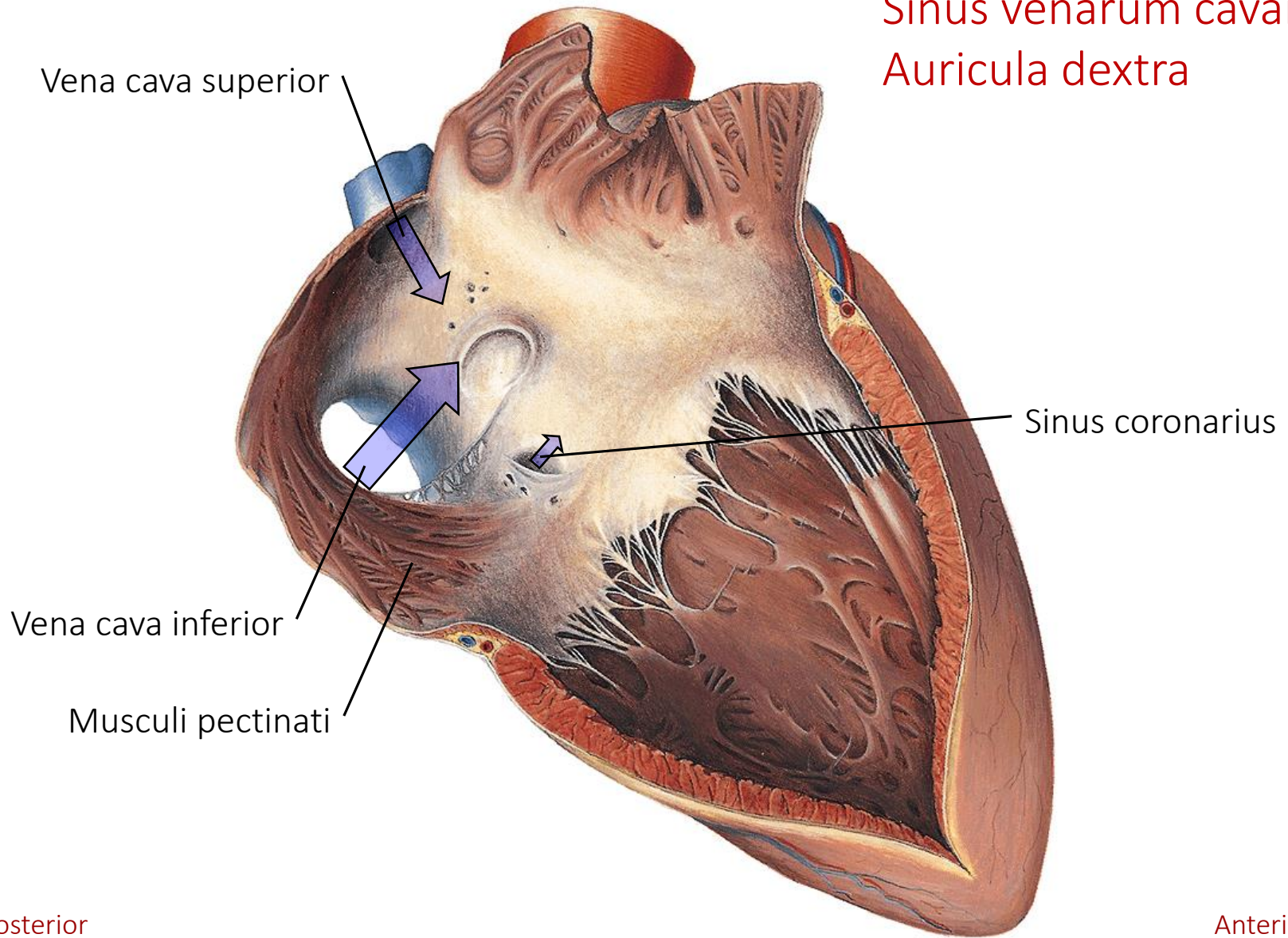


Segelklappen
(*Valvulae cuspidales*)

Venöse Öffnungen

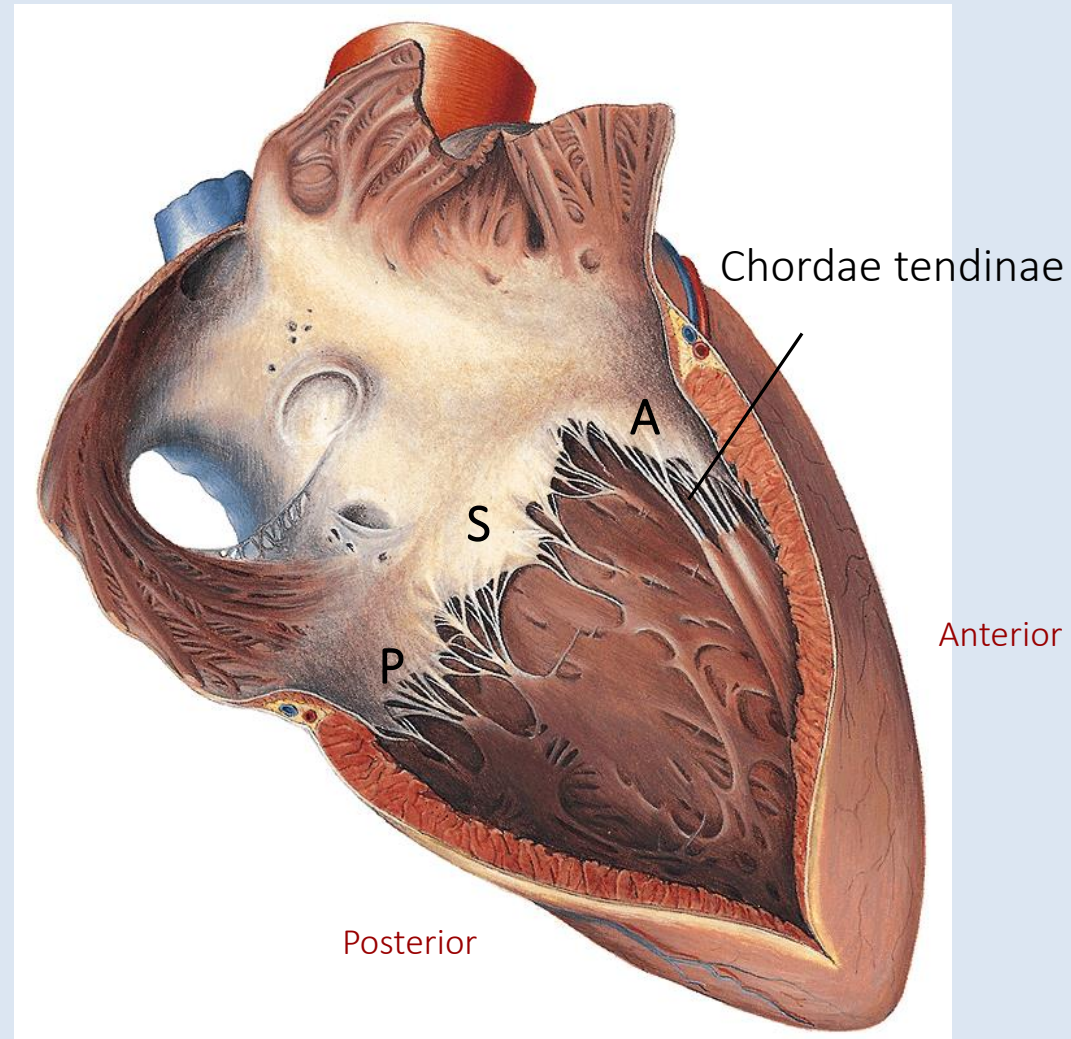
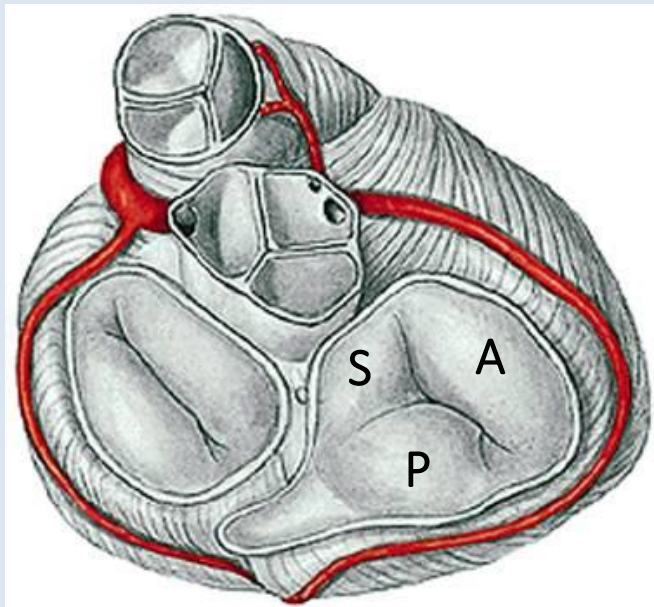
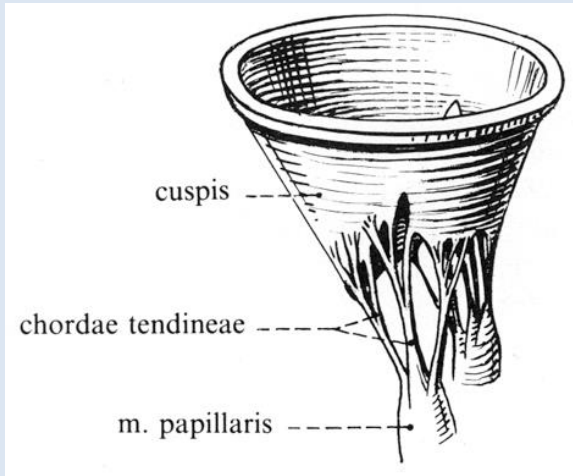
Rechter Vorhof (*Atrium dextrum*)

Sinus venarum cavarum
Auricula dextra

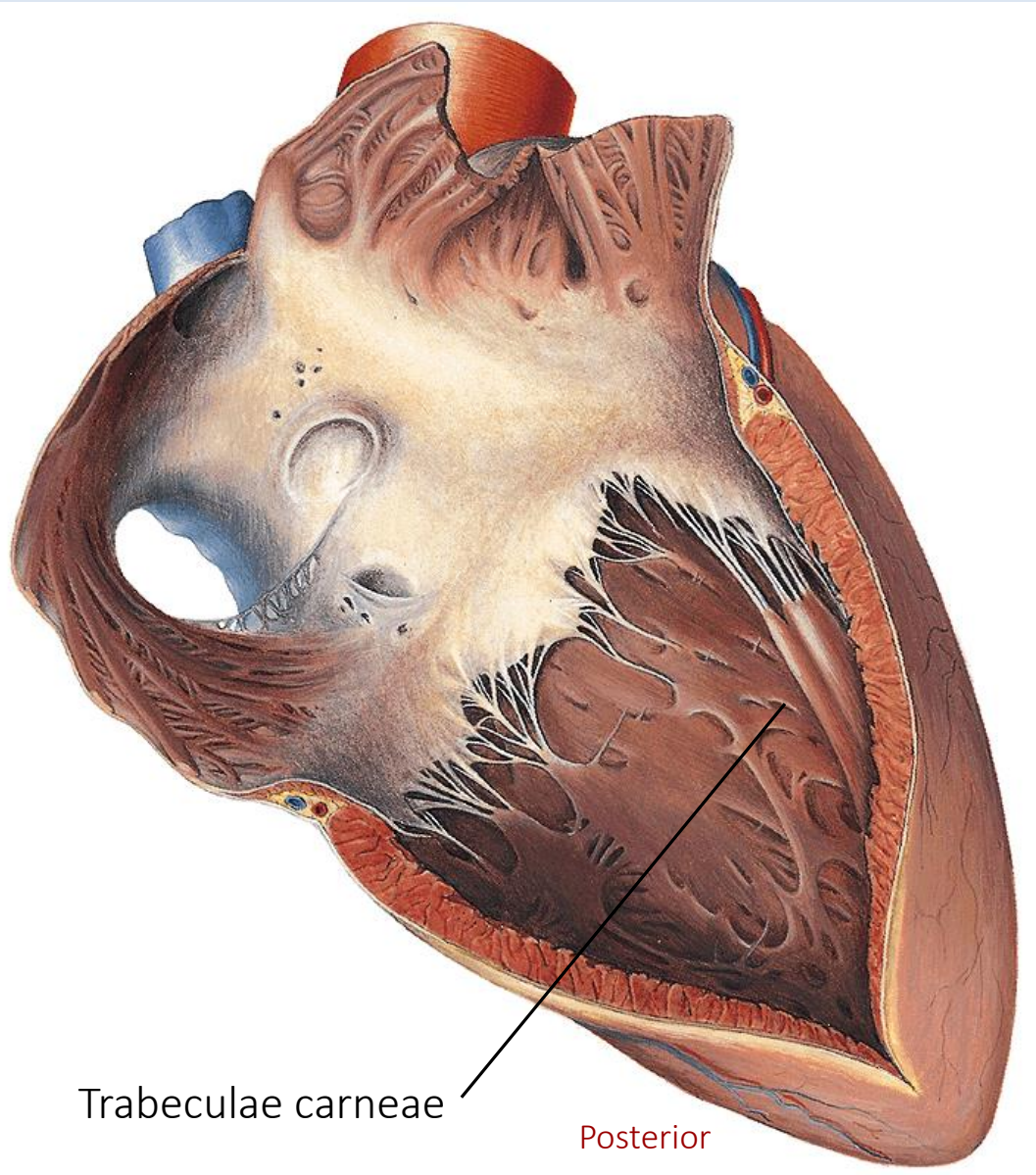


Ostium atrioventriculare dextrum

Valva tricuspidalis



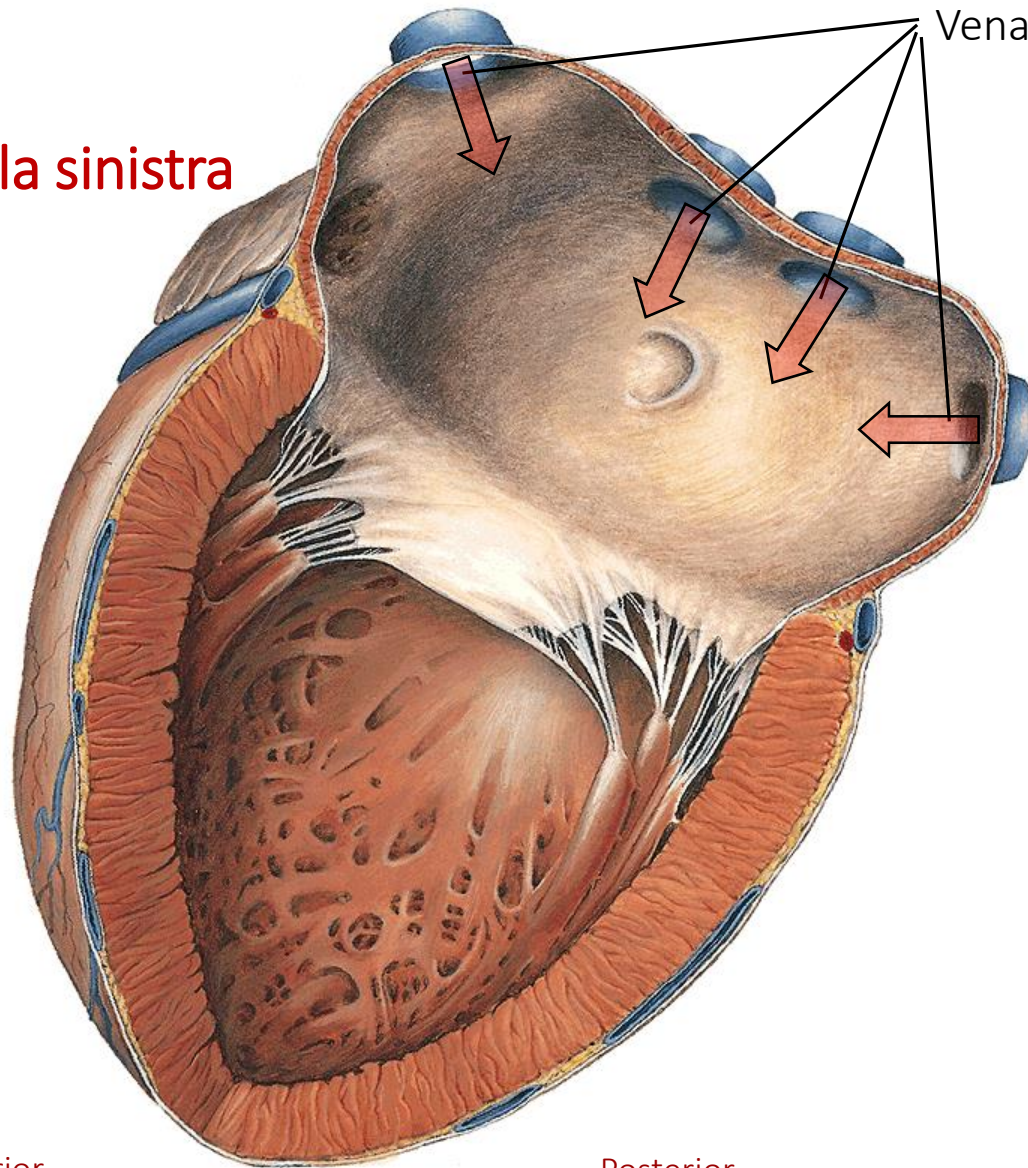
Ventriculus dexter



Anterior

Atrium sinistrum

Auricula sinistra



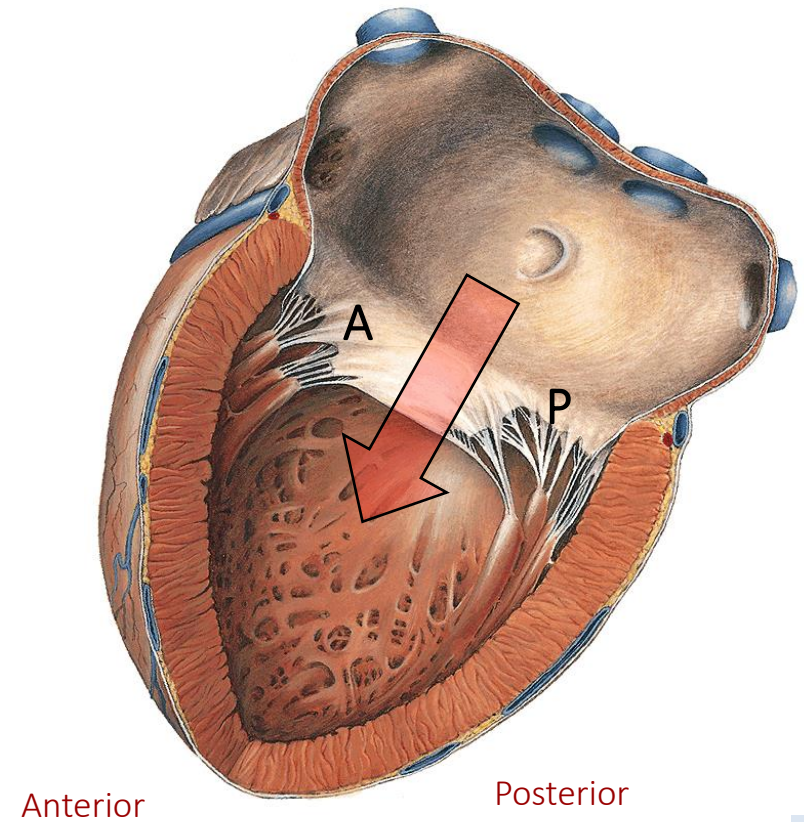
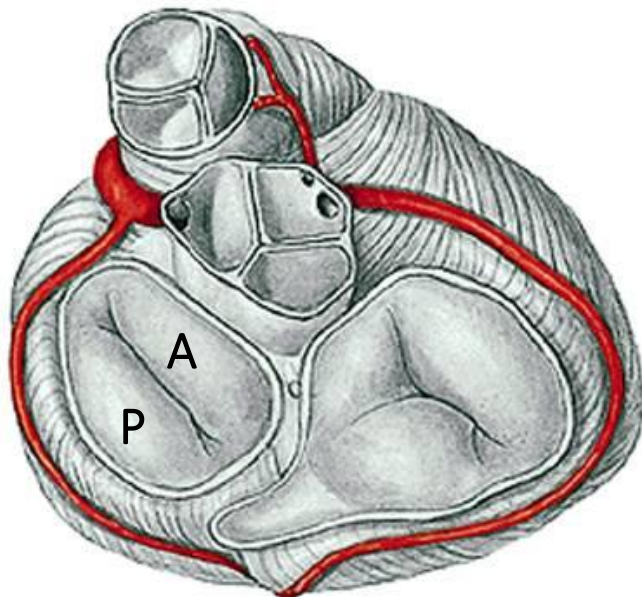
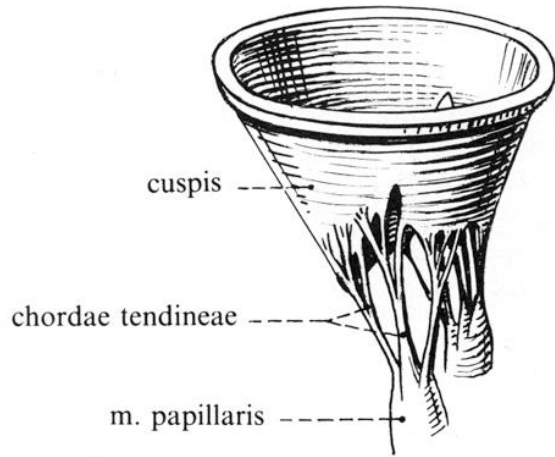
Venae pulmonales

Anterior

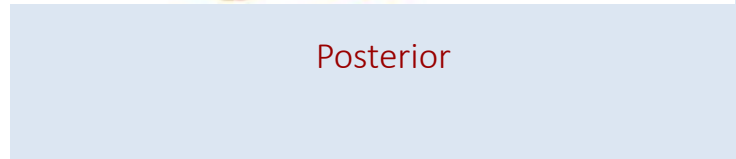
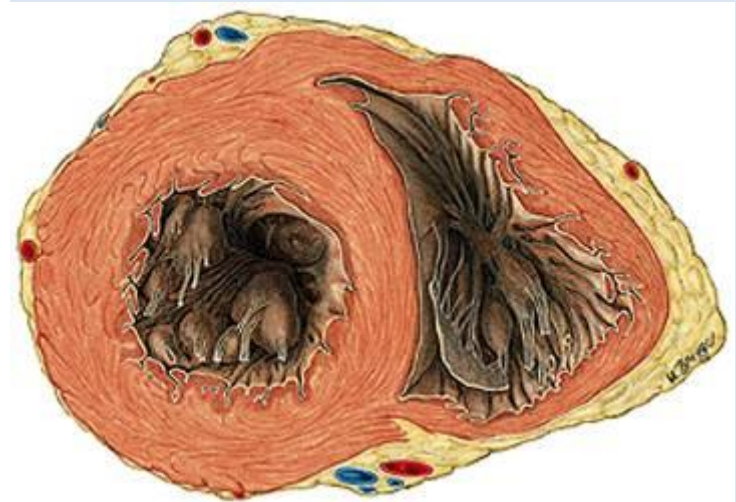
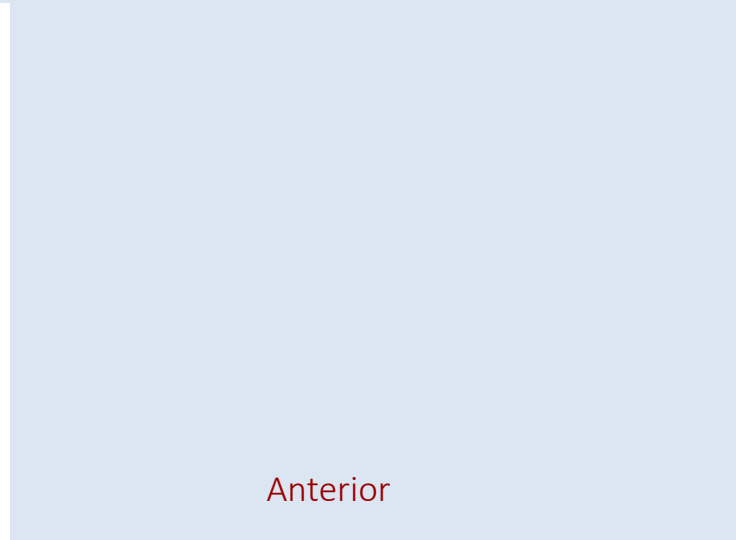
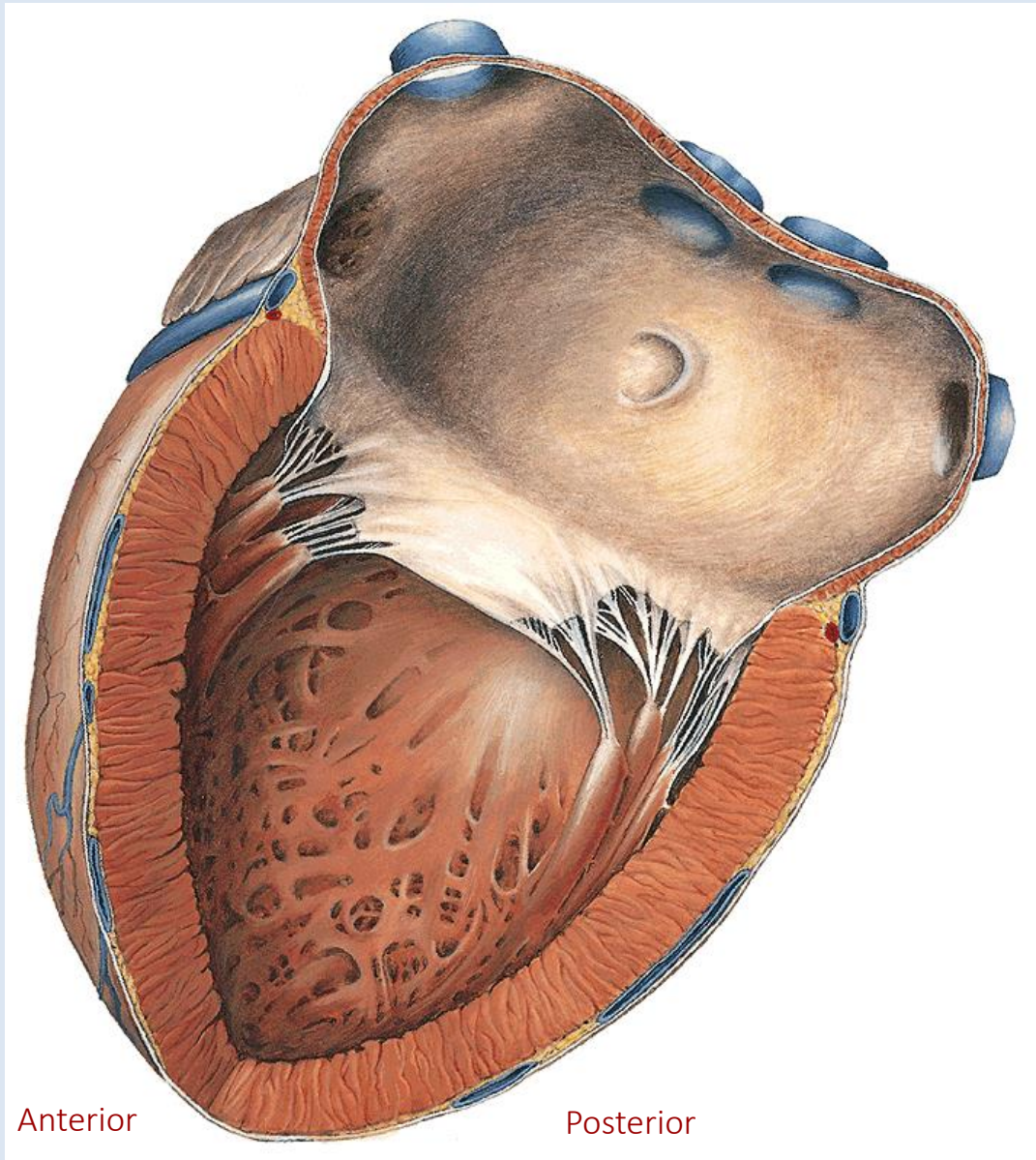
Posterior

Ostium atrioventriculare sinistrum

Valva bicuspidalis/valva mitralis



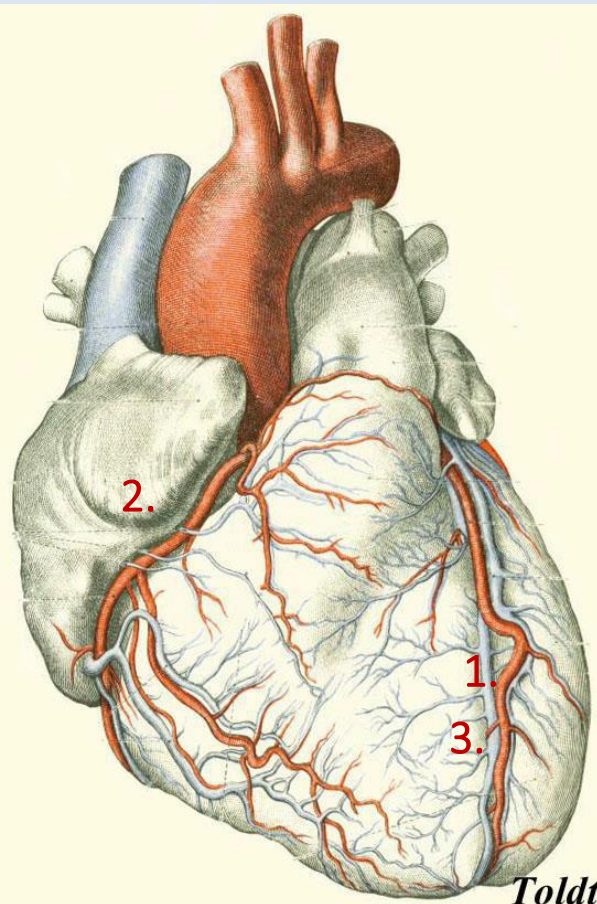
Ventriculus sinister



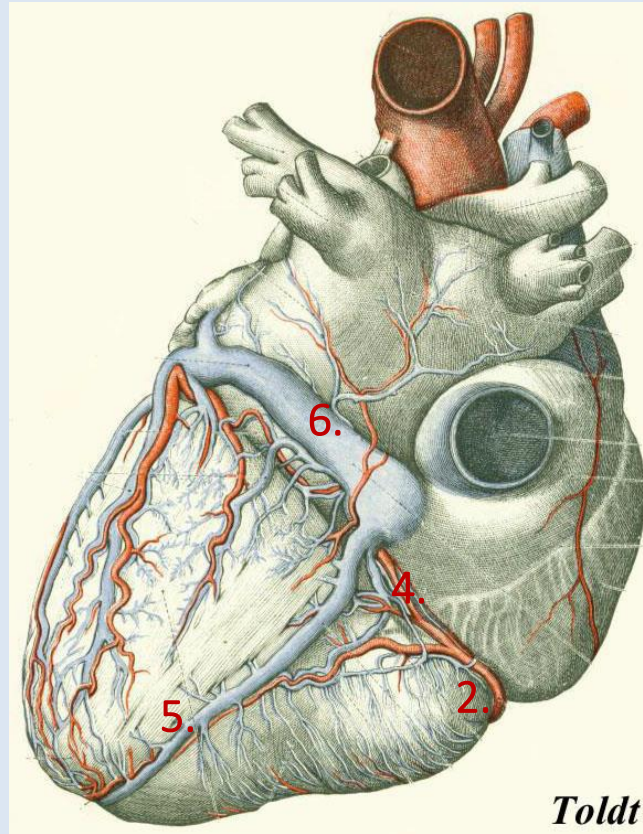
Herzkranzgefäße

Etwa 5-10 % des Schlagvolumens dienen allein der Ernährung der Herzmuskulatur.

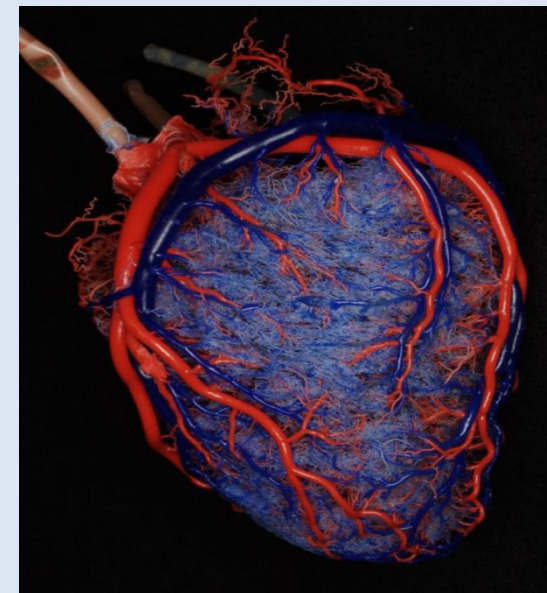
Die Herzkranzgefäße sind ein Teilkreislauf des großen Kreislaufs („*vasa privata et publica*“).



- 1. arteria coronaria sinistra
- 2. arteria coronaria dextra



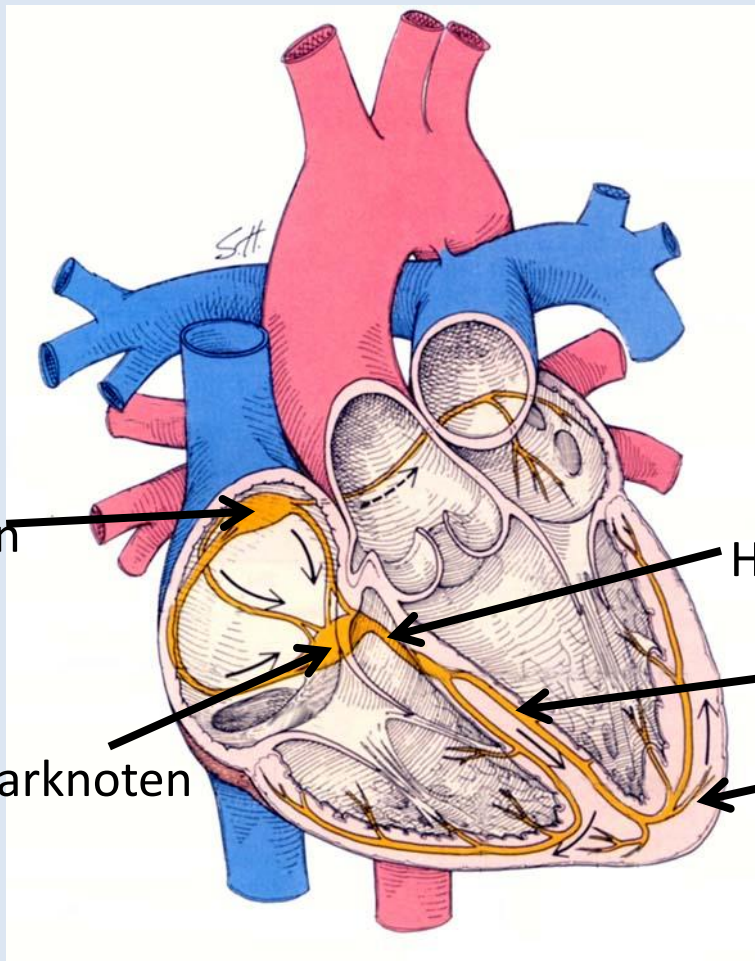
- 3. vena cordis magna
- 4. vena cordis parva
- 5. vena cordis media
- 6. sinus coronarius



Erregungsleitungssystem

Autonomie:

die Fähigkeit, Erregungen spontan in sich selbst zu bilden



Sinusknoten

His-Bündel

Tawara-Schenkel

Atrioventrikularknoten

Purkinje-Fasern

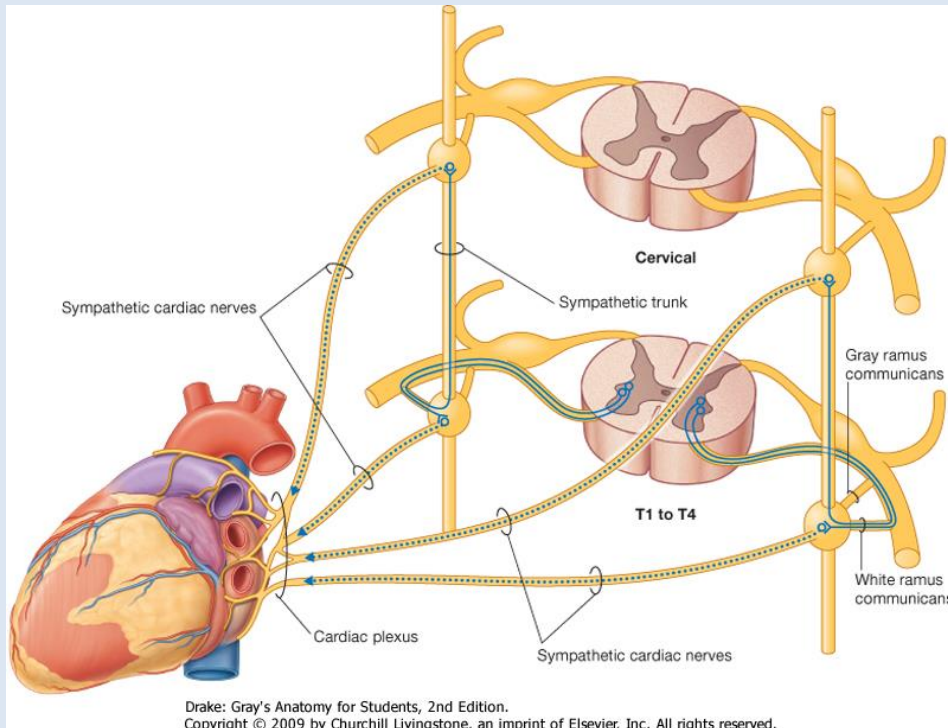
Nerven des Herzens

Parasympatische Fasern: **Nervus vagus (X.)**

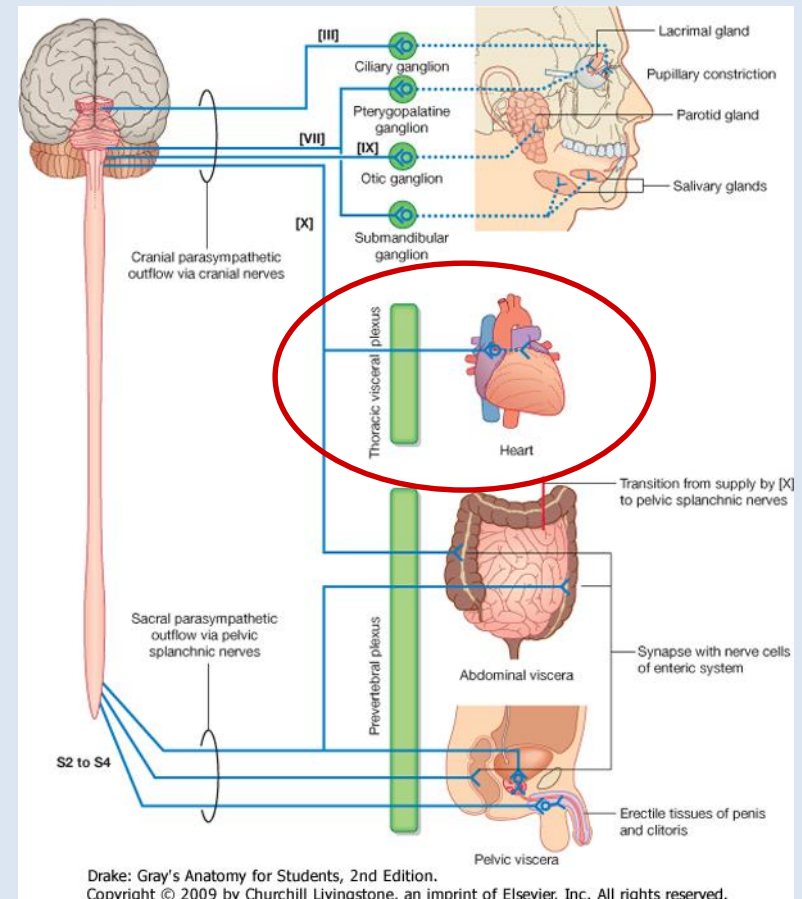
Sympatische Fasern: **sympatische Ganglien**

erniedrigt die Herzfrequenz

erhöhen die Herzfrequenz

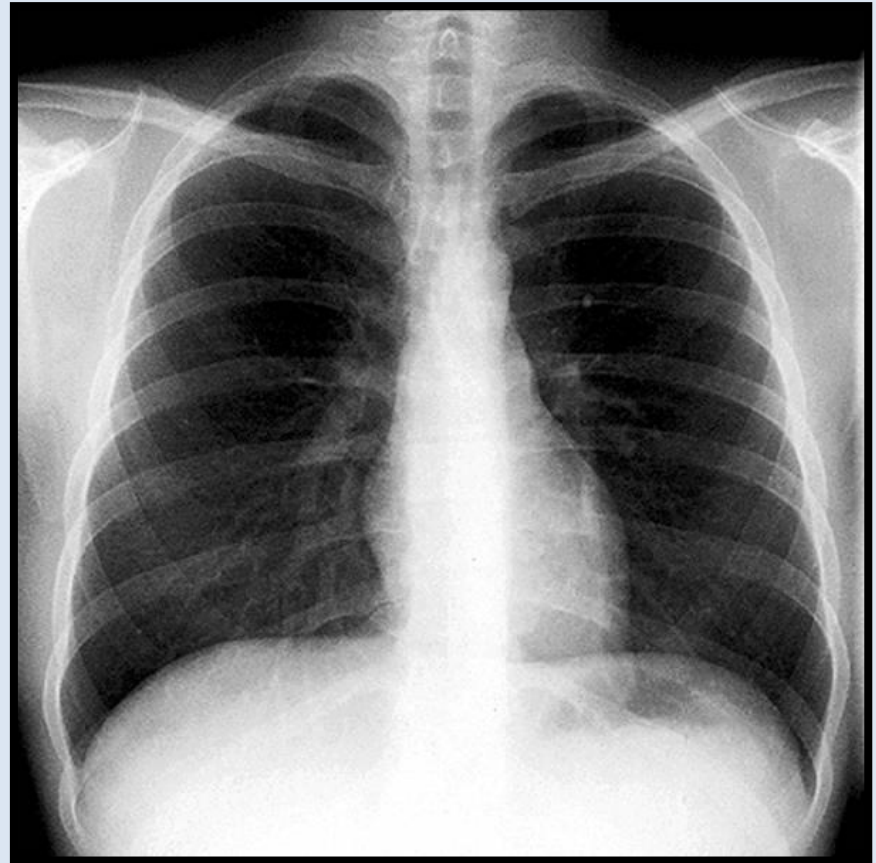
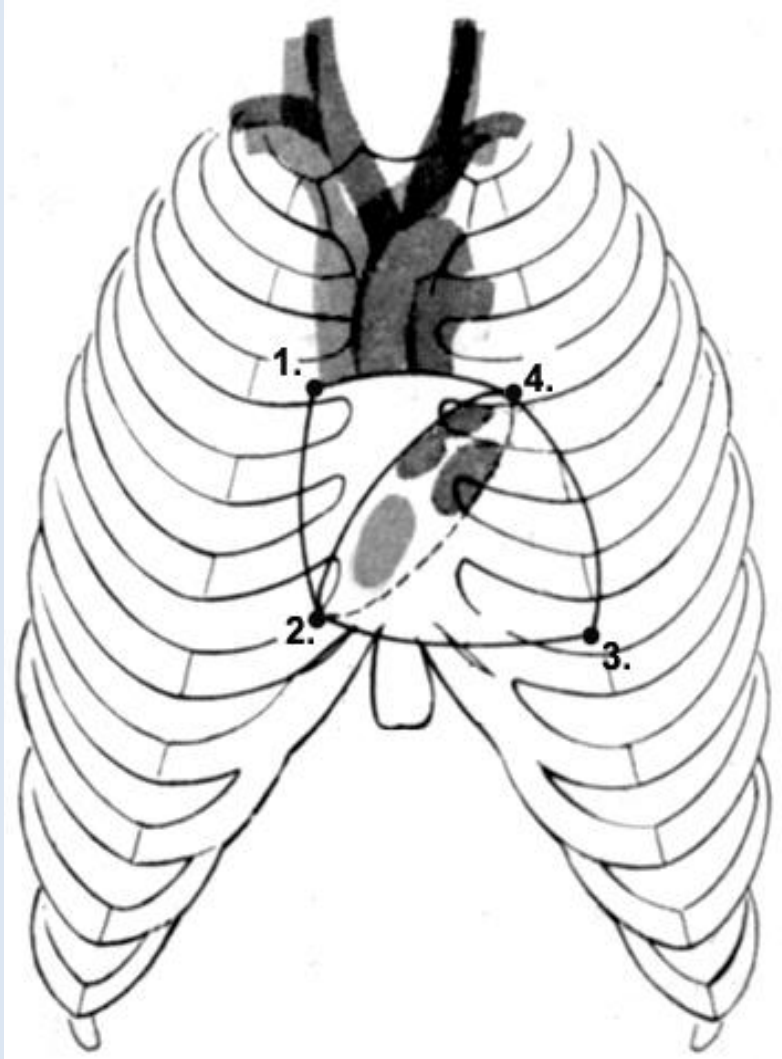


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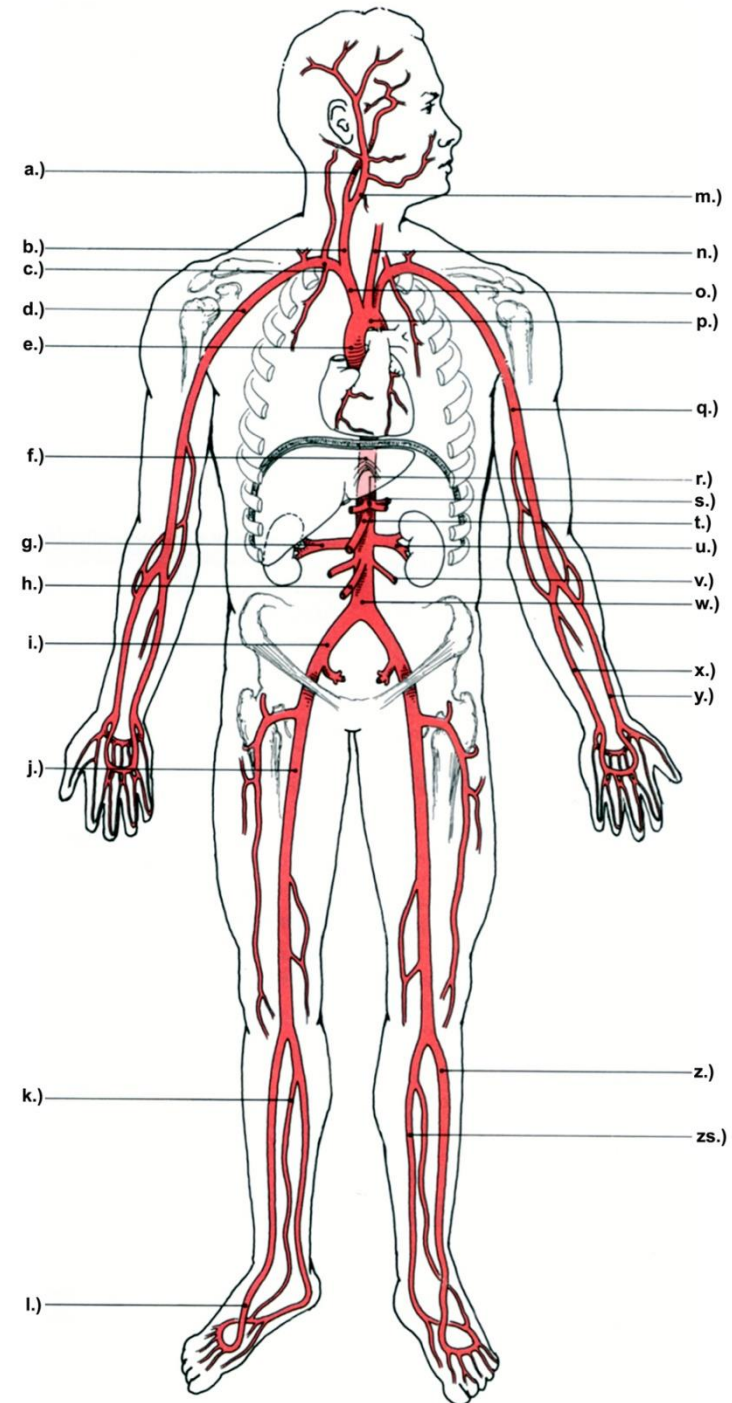
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Projektion des Herzens

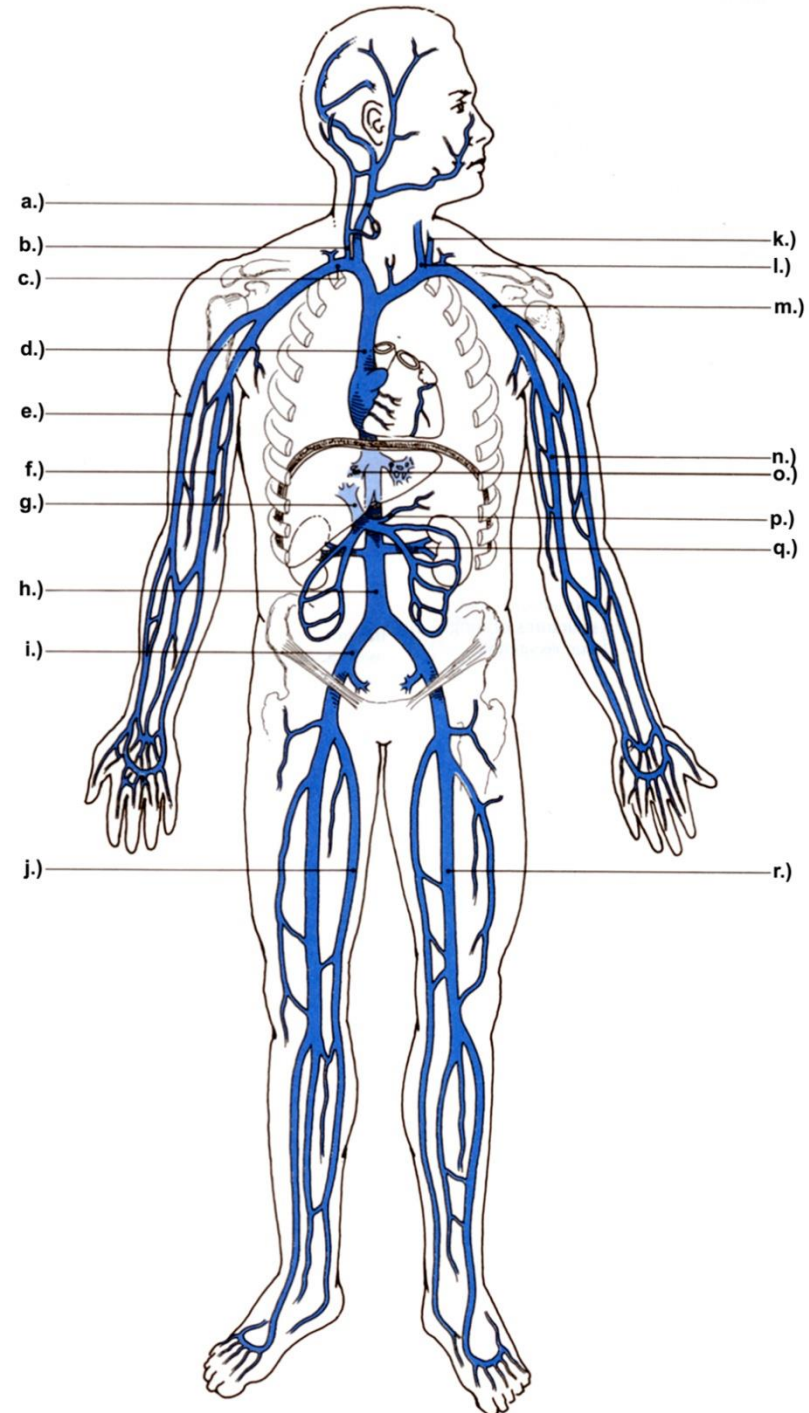


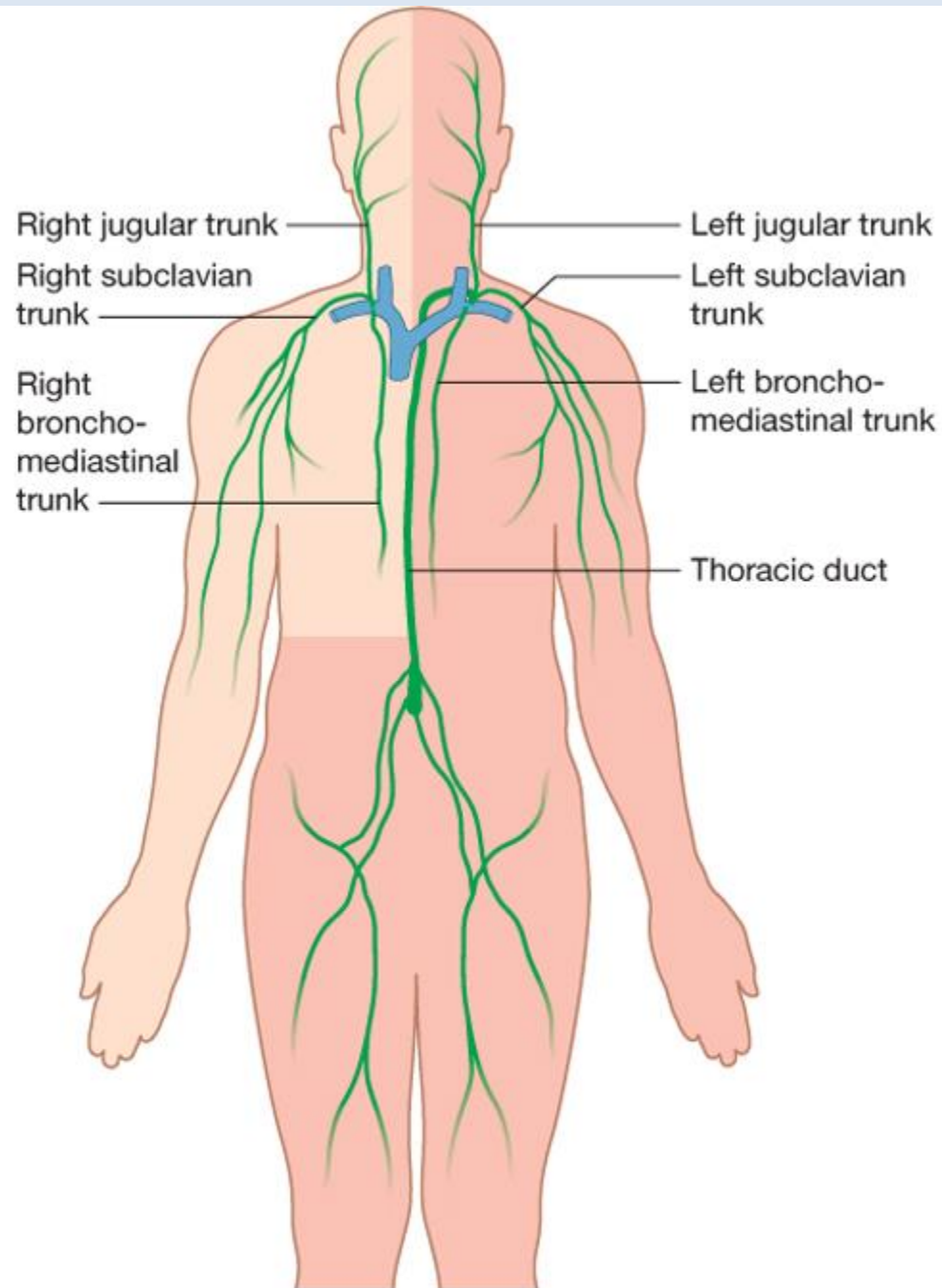
Danke für die Aufmerksamkeit!

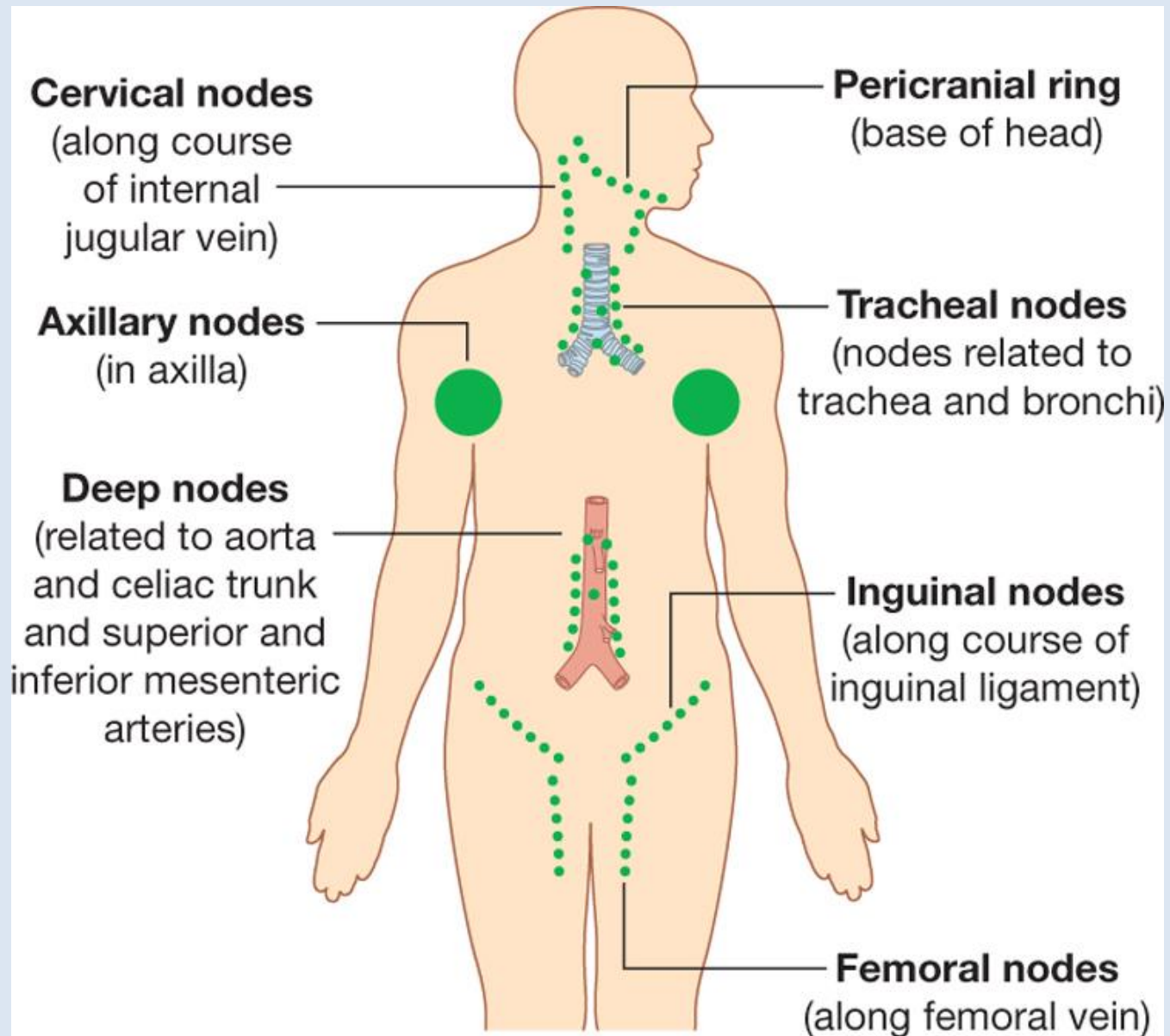
- a. A. carotis interna
- b. A. carotis communis dextra
- c. A. subclavia
- d. A. axillaris
- e. Aorta ascendens
- f. Aorta abdominalis
- g. A. renalis dextra
- h. A. mesenterica inferior
- i. A. iliaca communis
- j. A. femoralis
- k. A. fibularis
- l. A. dorsalis pedis
- m. A. carotis externa
- n. A. carotis communis sinistra
- o. A. brachiocephalica
- p. Arcus aortae
- q. A. brachialis
- r. Truncus celiacus
- s. A. suprarenalis
- t. A. mesenterica superior
- u. A. renalis sinistra
- v. A. testicularis/ovarica
- w. Aorta abdominalis
- x. A. ulnaris
- y. A. radialis
- z. A. tibialis anterior
- zs. A. tibialis posterior



- a. V. jugularis interna
- b. V. jugularis externa
- c. V. subclavia
- d. V. cava superior
- e. V. cephalica
- f. V. basilica
- g. V. portae
- h. V. cava inferior
- i. V. iliaca communis
- j. V. saphena magna
- k. V. jugularis interna
- l. V. jugularis externa
- m. V. axillaris
- n. V. brachialis
- o. V. hepatica
- p. V. mesenterica superior
- q. V. renalis
- r. V. femoralis







Literaturübersicht:

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Gilbert: Developmental Biology

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Putz R., Pabst R.: Sobotta: Az ember anatómiájának atlasza, 1. kötet

Röhlich: Szövettan

Szentágothai J., Réthely M.: Funkcionális anatómia, 2. kötet

Dr. Altdorfer Károly: Szív

Dr. Kozsurek Márk: Szívfejlődés

Dr. Herberth-Minkó Krisztina: A szív, szívfejlődés, keringési rendszer

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www.lab.anhb.uwa.edu.au/.../Muscle/Muscle.htm

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