

**A szív erei, ingervezető rendszere.  
Pericardium, situs cordis.  
Auscultatio, szívtoppulat.**

**A mediastinum felosztása.**

**Dr. Ruttkay Tamás**

**Anatómiai, Szövet- és Fejlődéstani Intézet  
2019.**

# Vasa privata → koszorúerek

Ramus nodi sinuatrialis

Arteria coronaria dextra

Spalteholz

Arteria coronaria sinistra

Ramus circumflexus

Ramus marginalis sinister

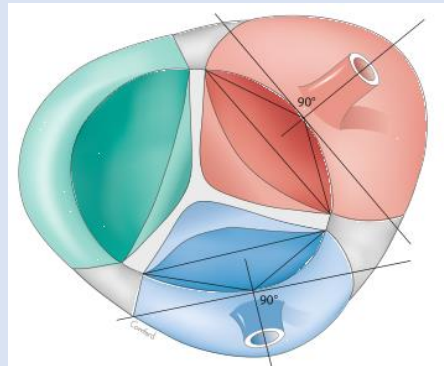
Ramus interventricularis anterior

Ramus interventricularis septalis

Ramus lateralis/diagonalis

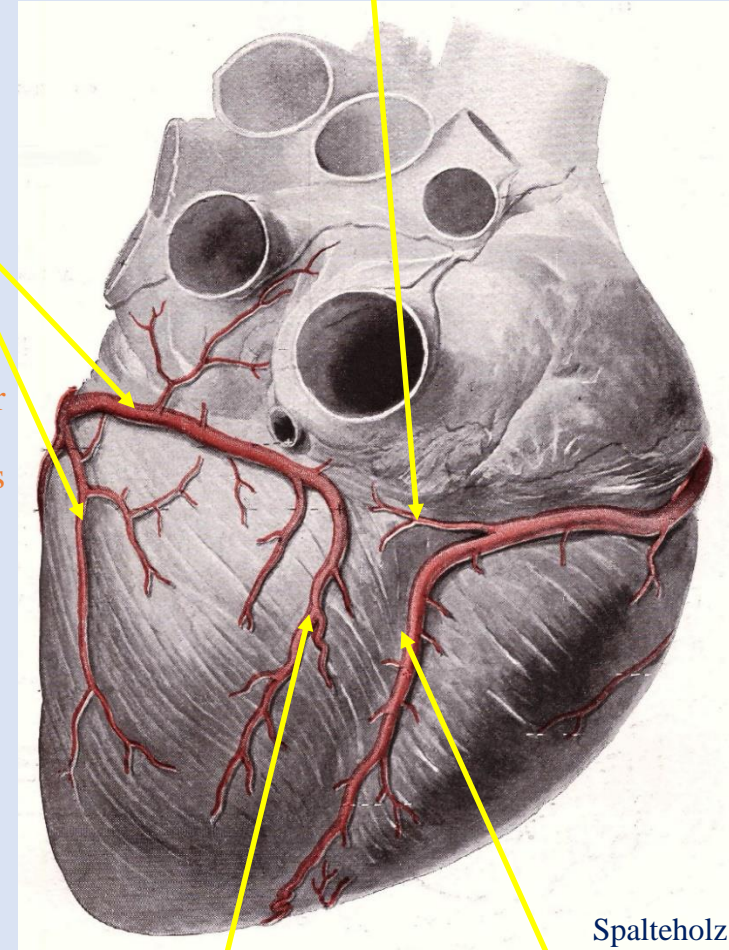
Ramus coni arteriosi

Ramus marginalis dexter



Berdajs

Ramus nodi atrioventricularis



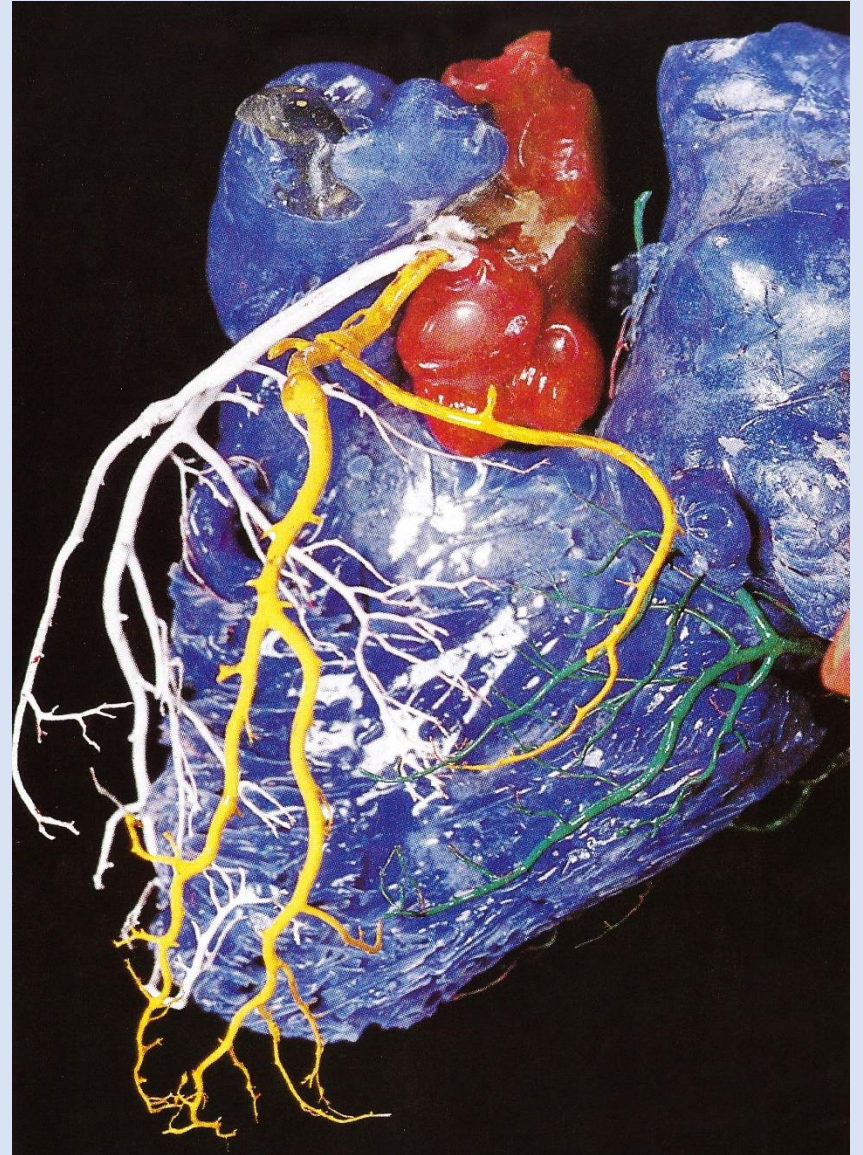
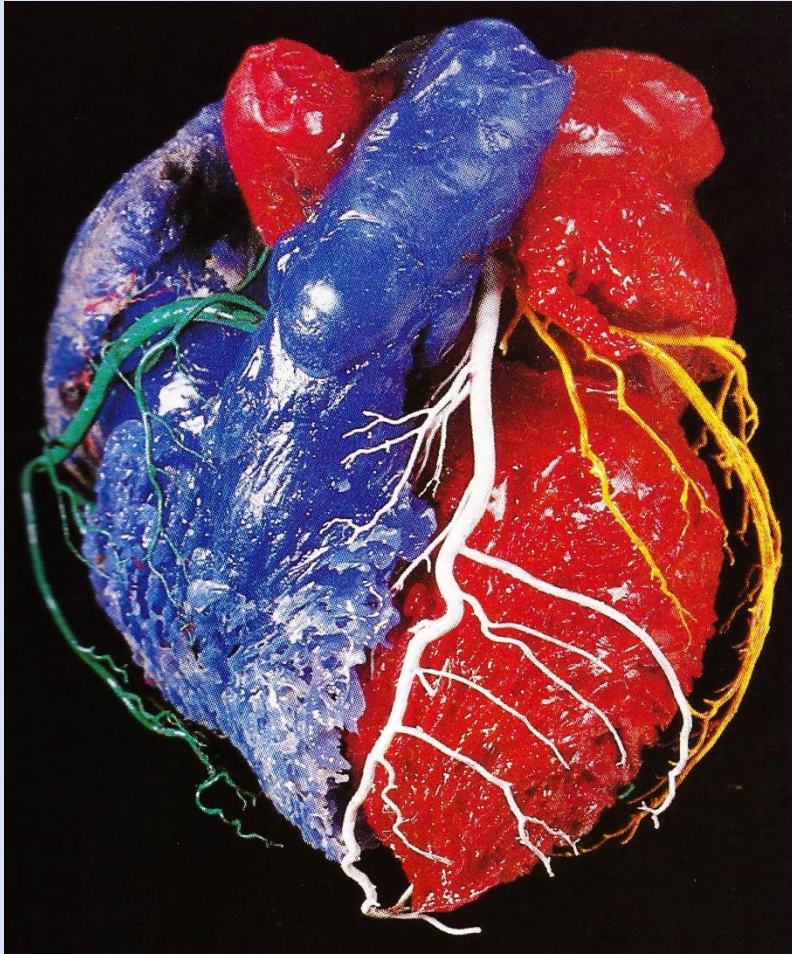
Spalteholz

Ramus posterior ventriculi sinistri

Ramus interventricularis posterior

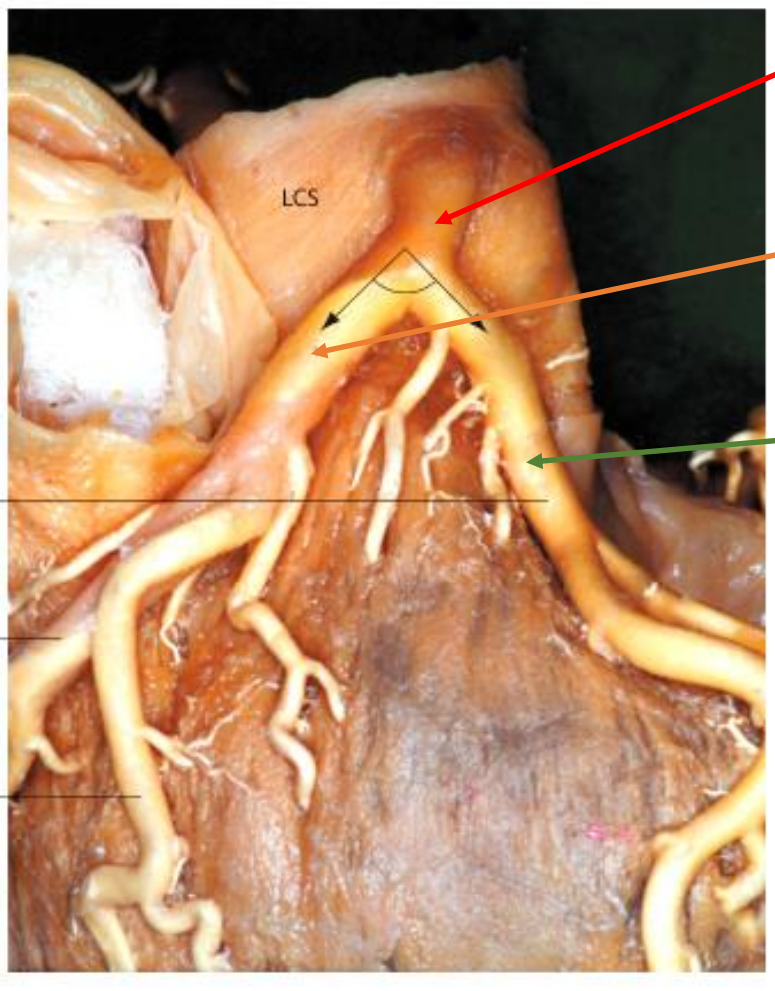


# Koszorúerek





# Arteria coronaria sinistra – bal főtörzs

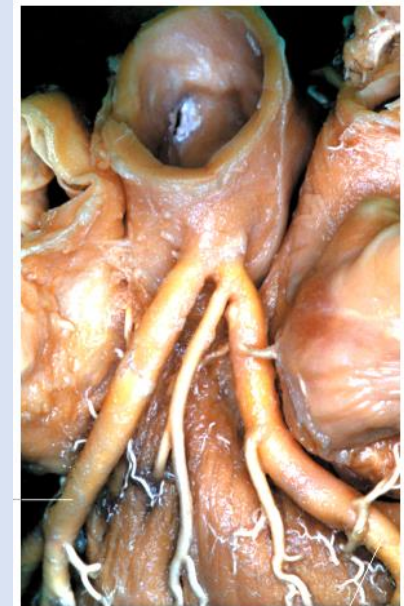
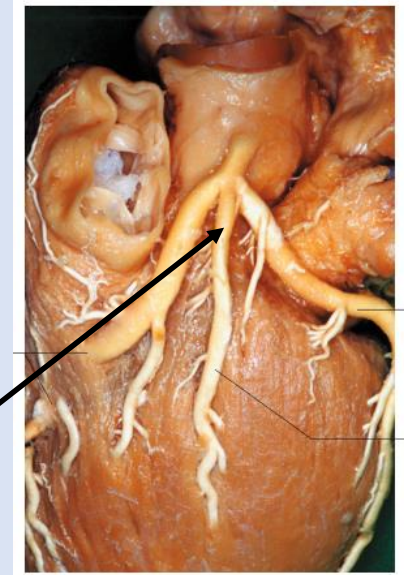


**Arteria coronaria sinistra**

Ramus  
interventricularis  
anterior

Ramus  
circumflexus

(Ramus intermedius)

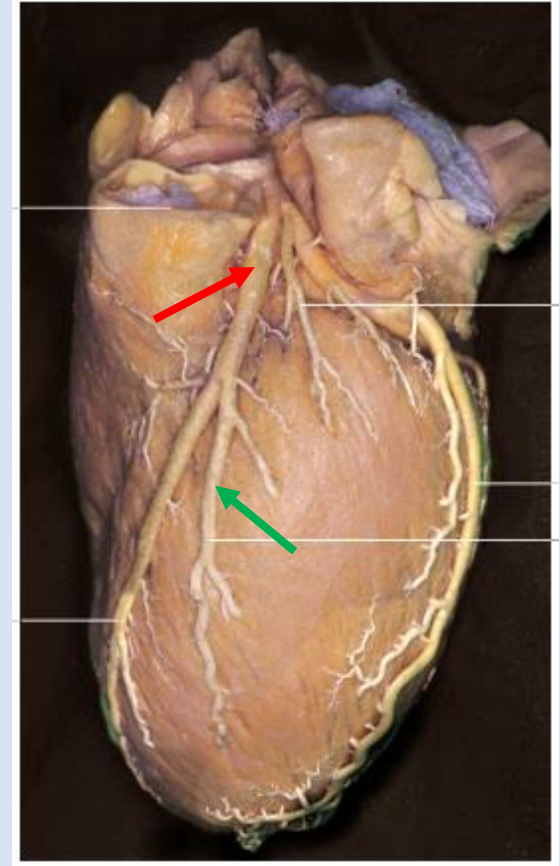
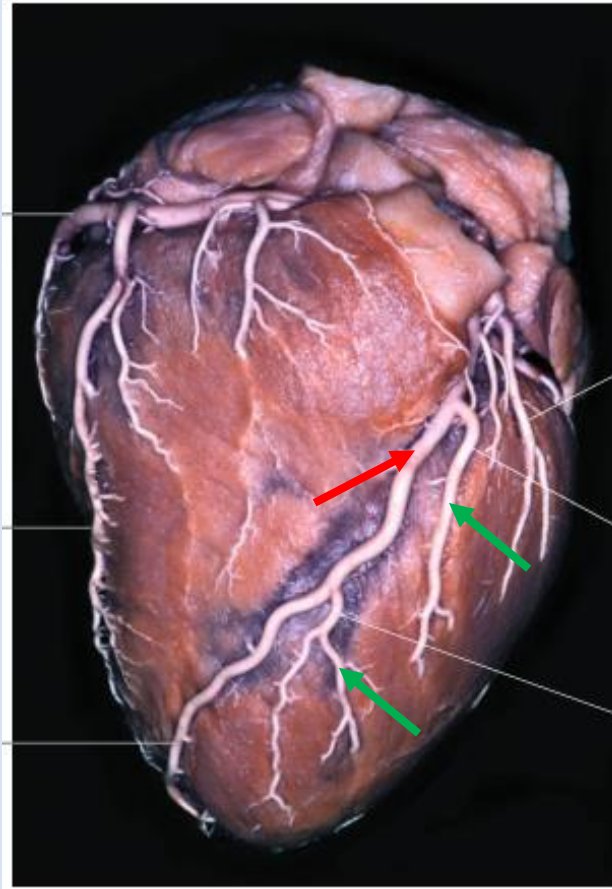
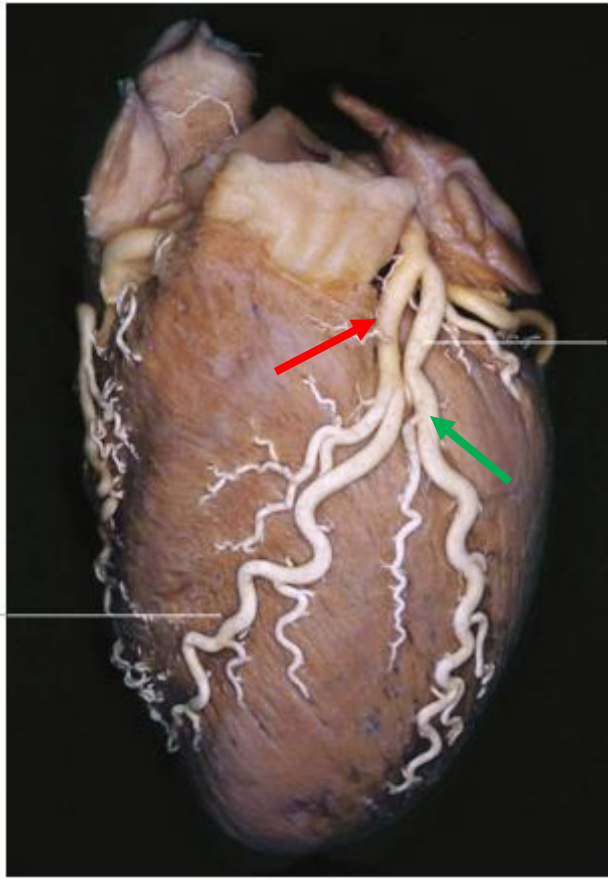


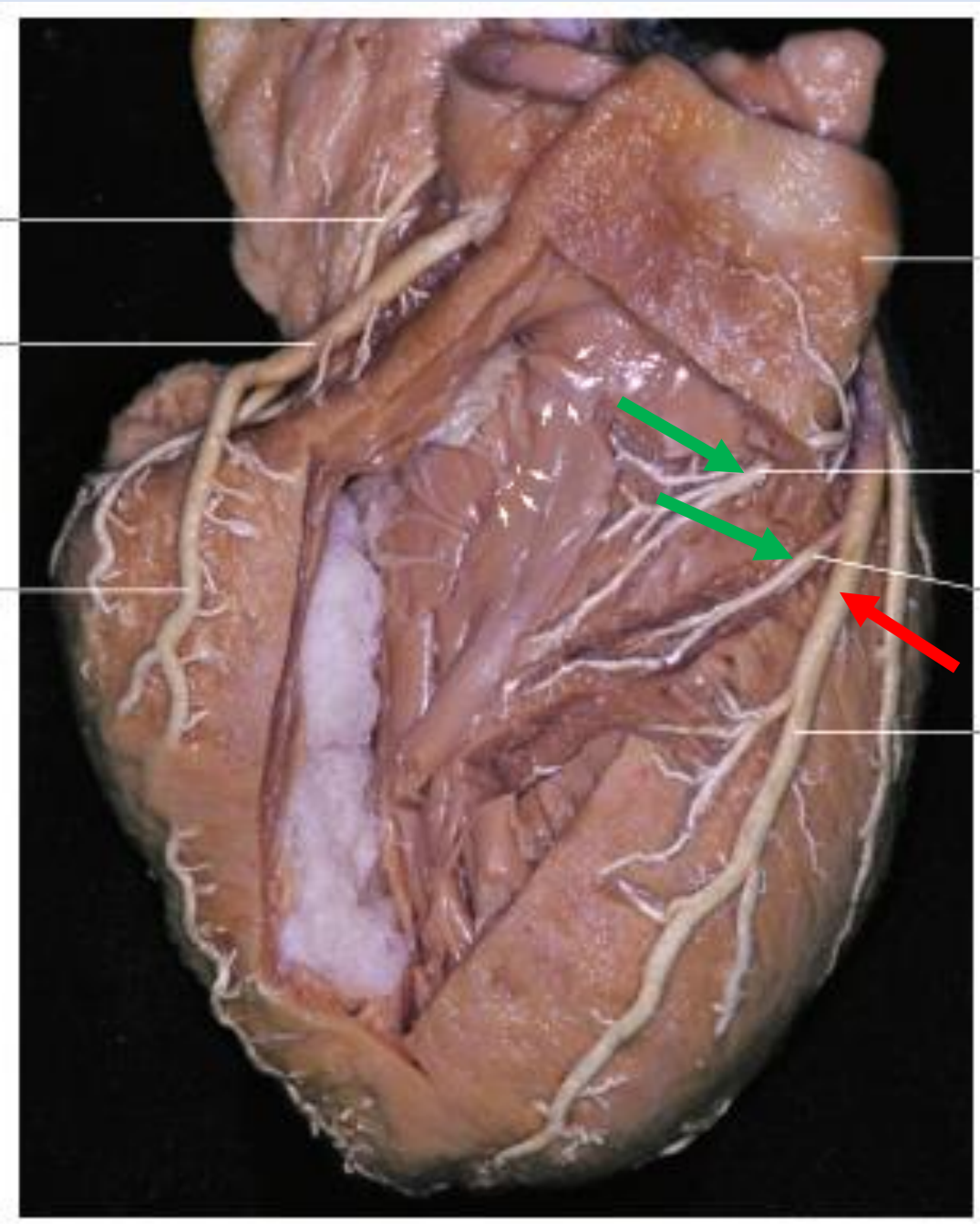
lehetséges variációk:

**bifurcatio – trifurcatio – külön eredés**



# Ramus interventricularis anterior: Rami laterales/diagonales





Ramus  
interventricularis  
anterior:

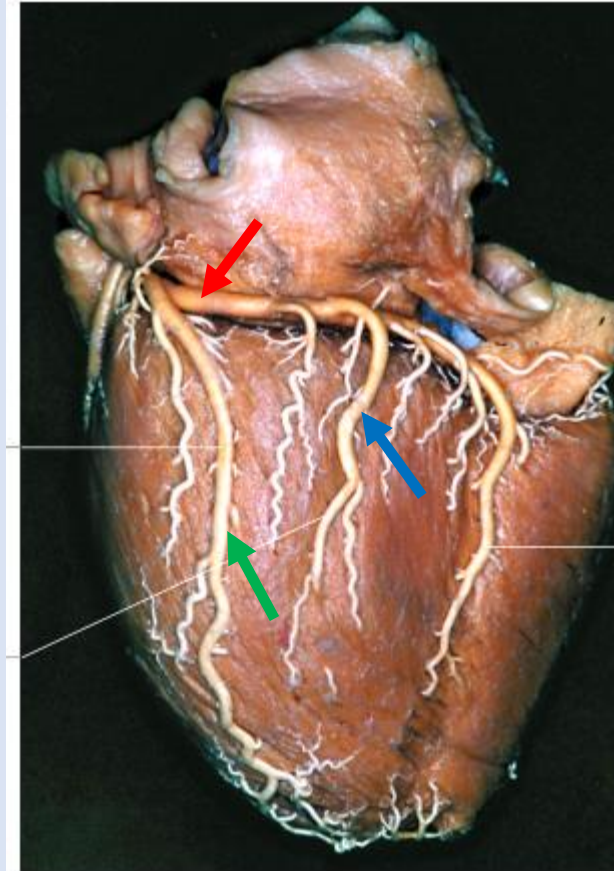
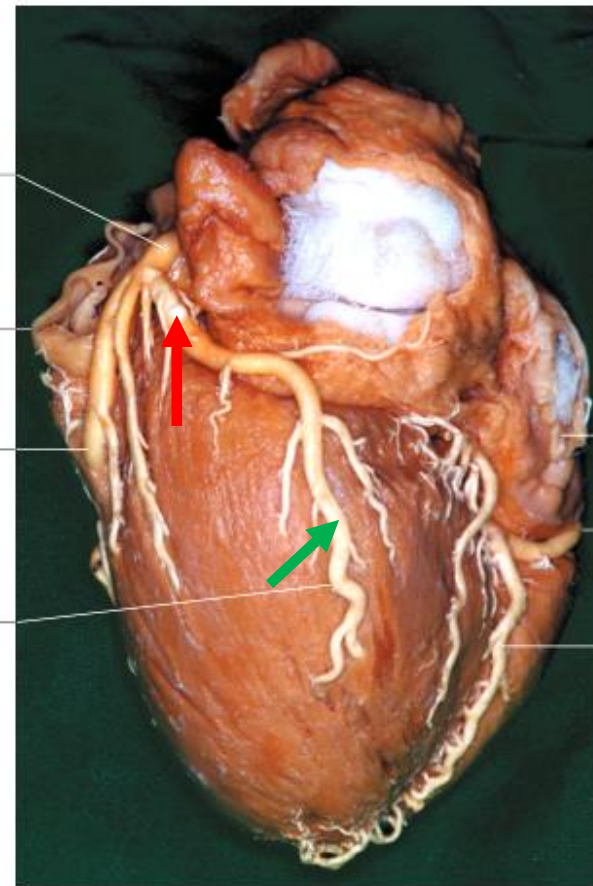
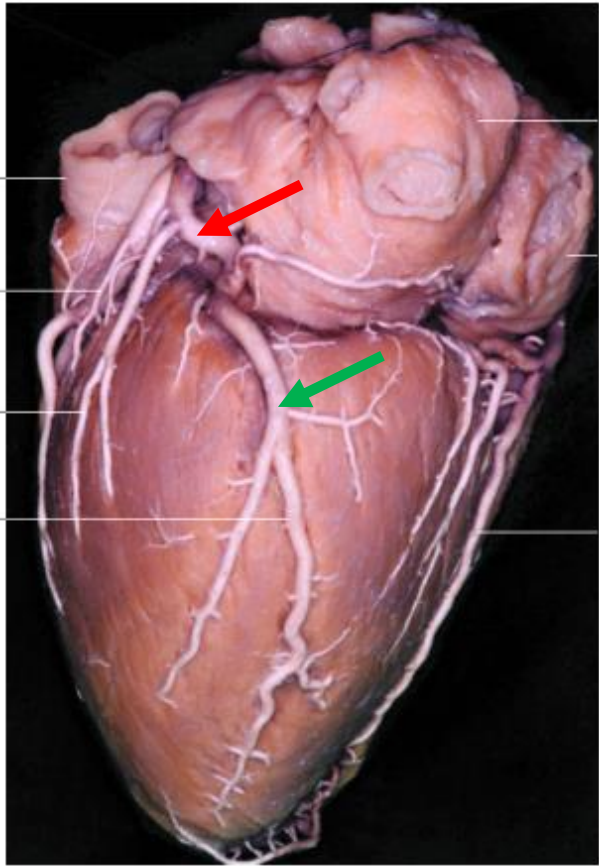
Rami  
interventriculares  
septales

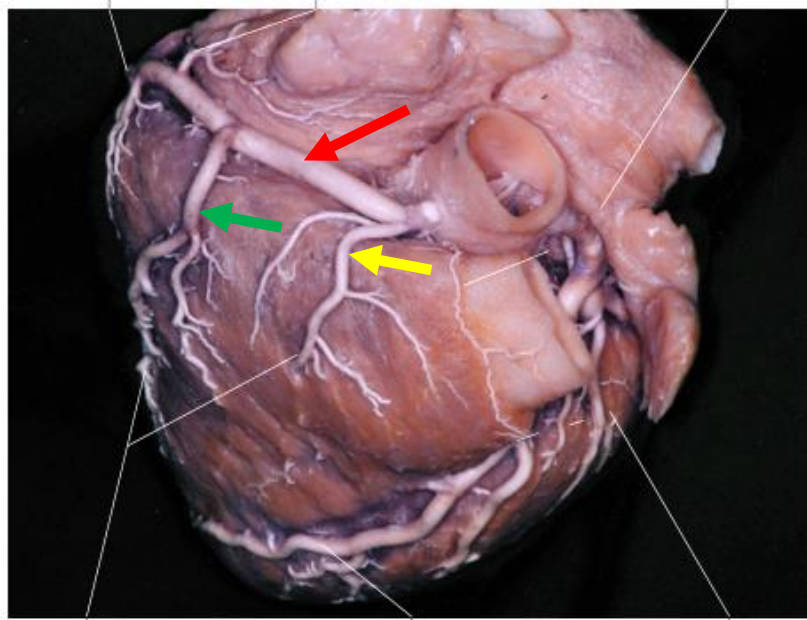


# Ramus circumflexus:

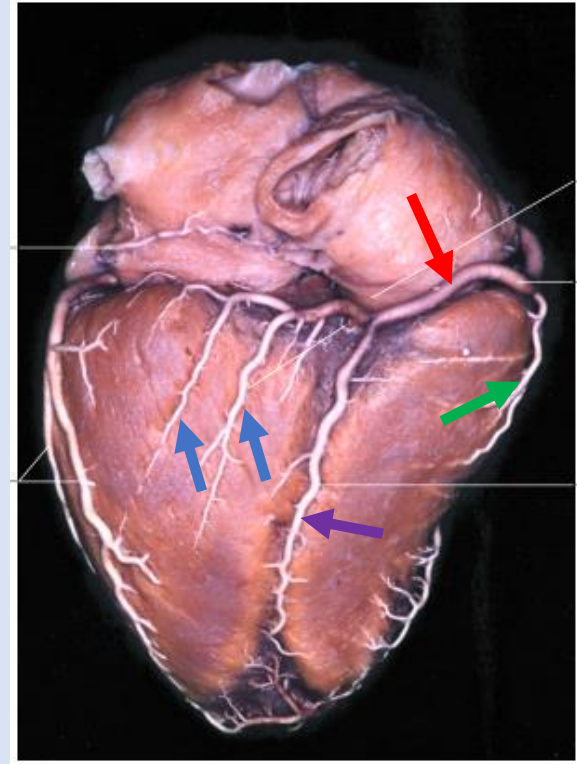
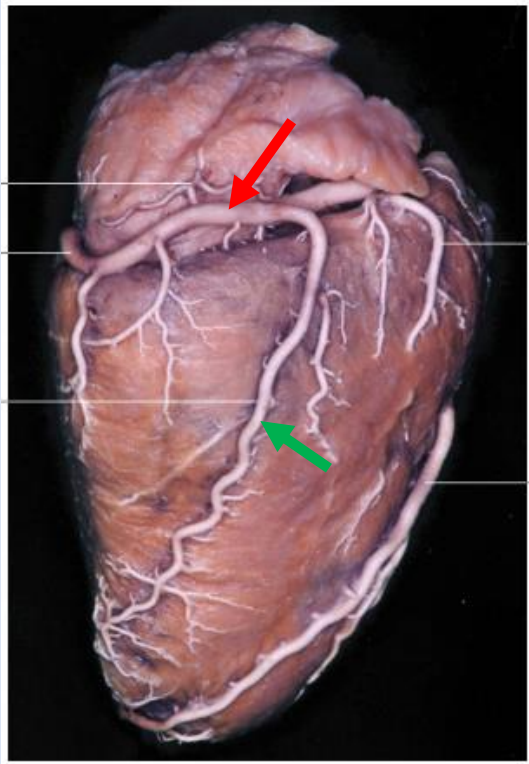
Ramus marginalis sinister,

Rami posteriores ventriculi sinistri





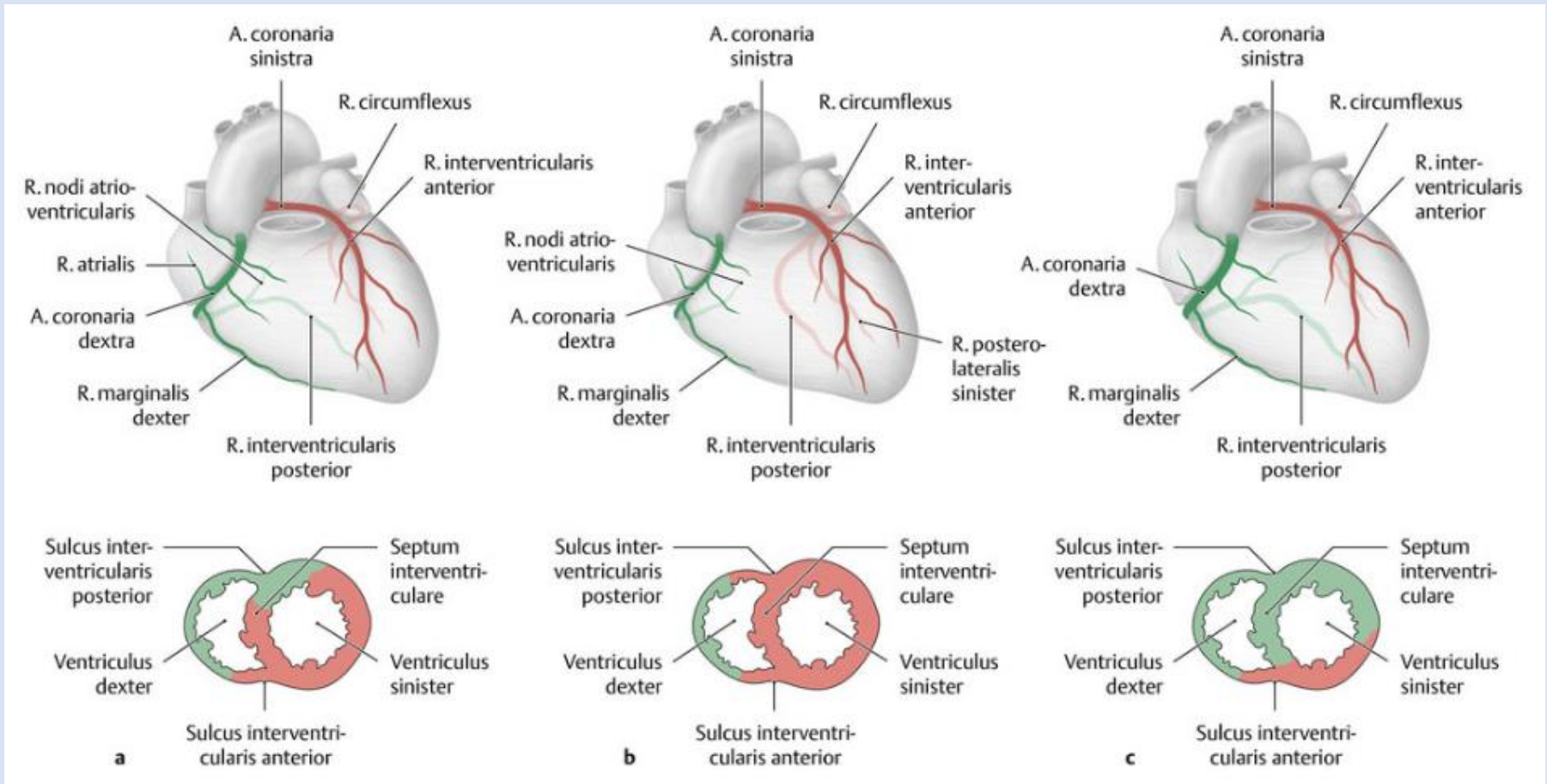
**Arteria coronaria dextra:**  
**Ramus conii arteriosi,**  
**Ramus marginalis dexter,**  
Ramus interventricularis posterior,  
Rami posterolaterales dextrae





# Koszorúérdominancia

Schünke et al.

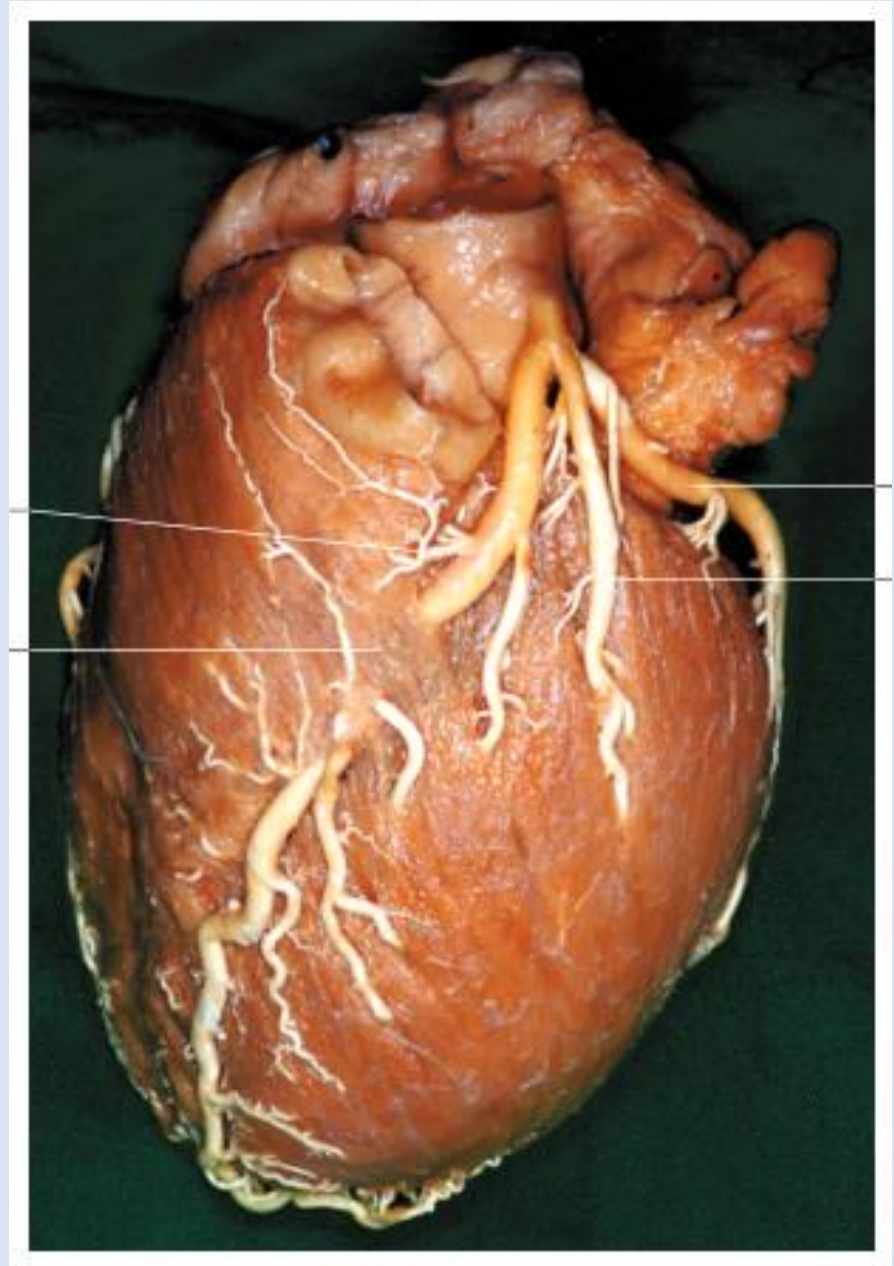
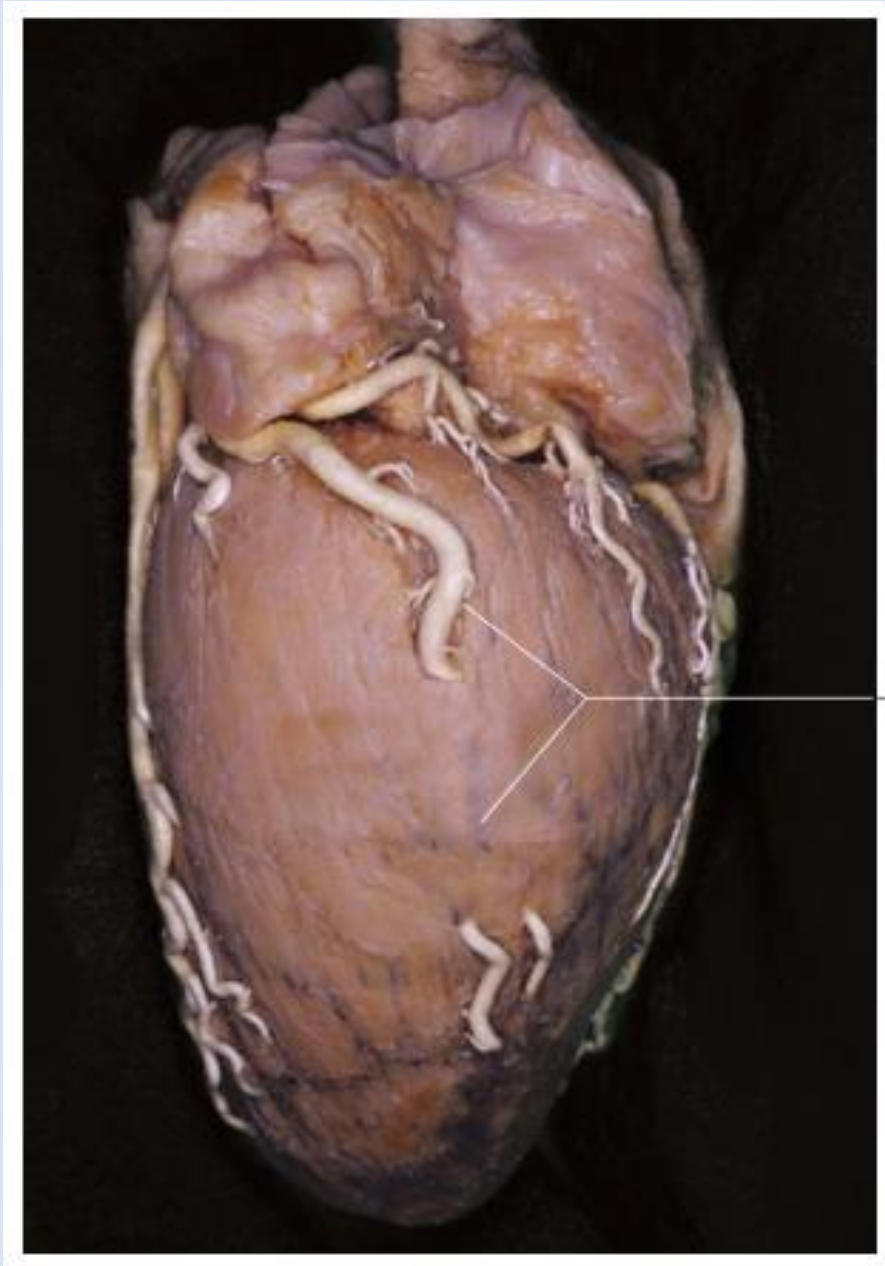


Normál (70 %)

„Bal domináns“

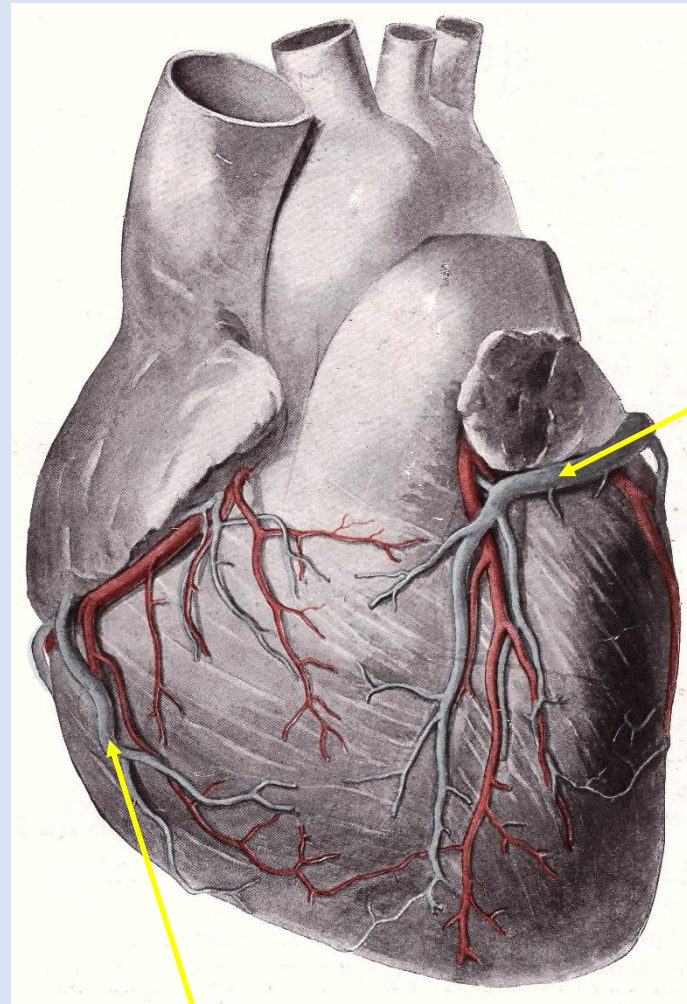
„Jobb domináns“

# Myocardium-hidak





# Vasa privata → a szív vénái



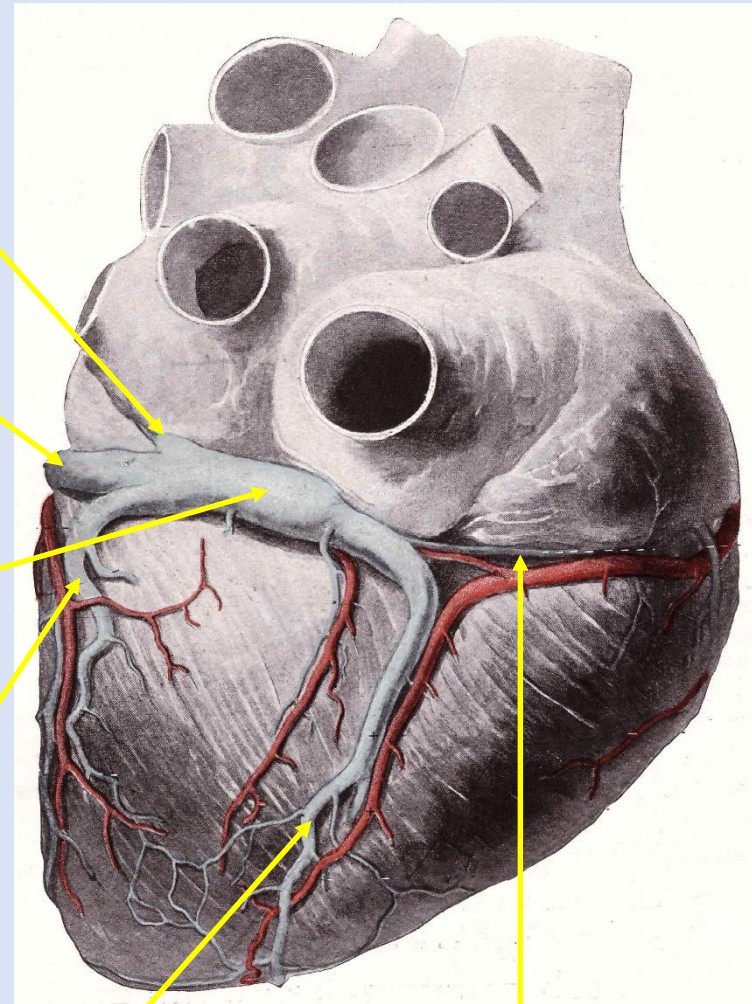
(Venae cordis anteriores)

Vena obliqua  
atrii sinistri  
(Marschall-véna)

Vena cordis magna

Sinus coronarius

Vena ventriculi  
sinistri posterior

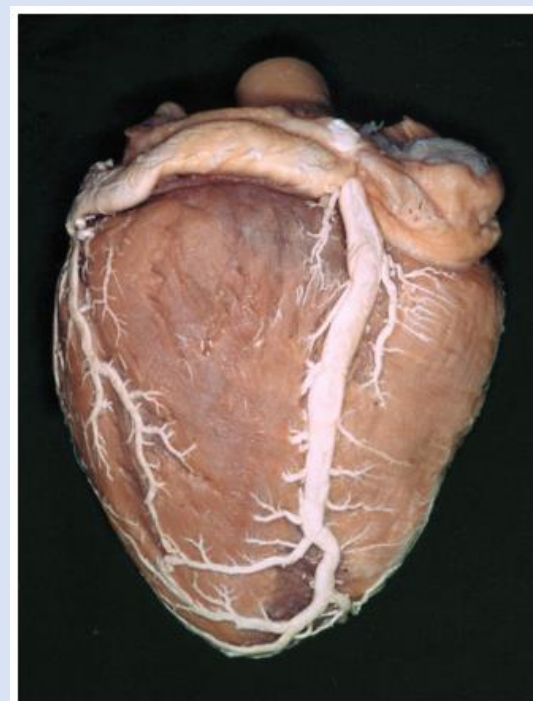
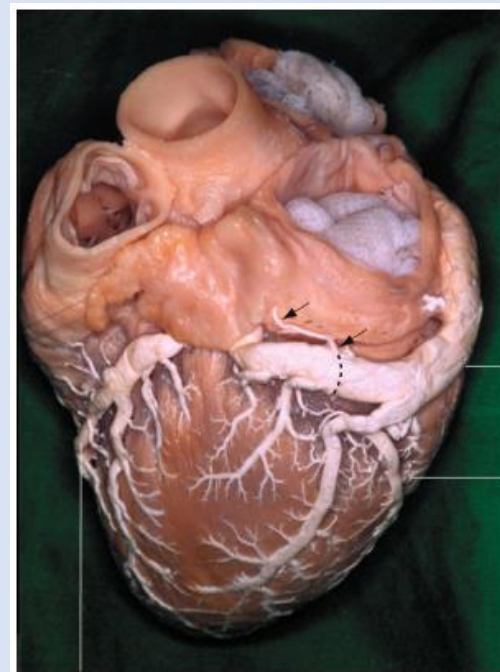
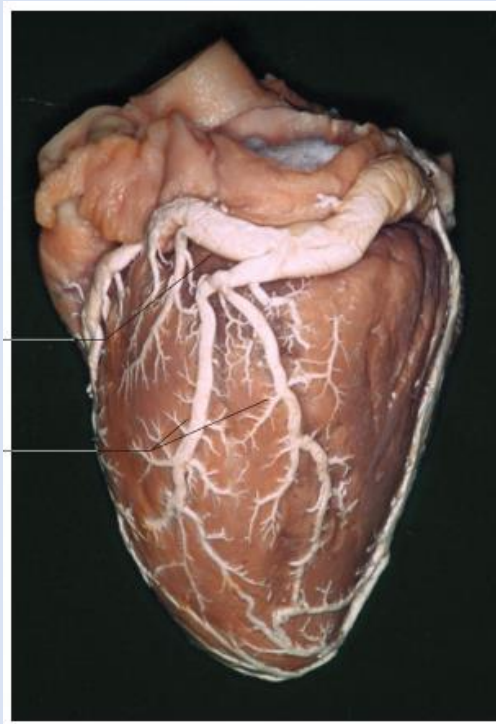
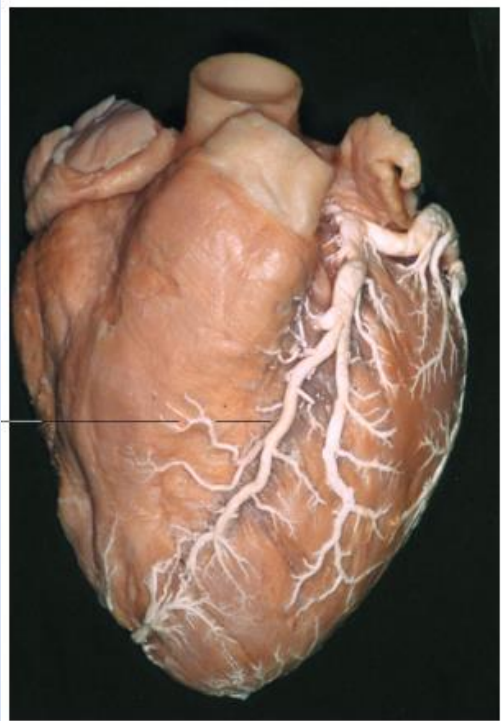


Vena cordis media

Vena cordis parva

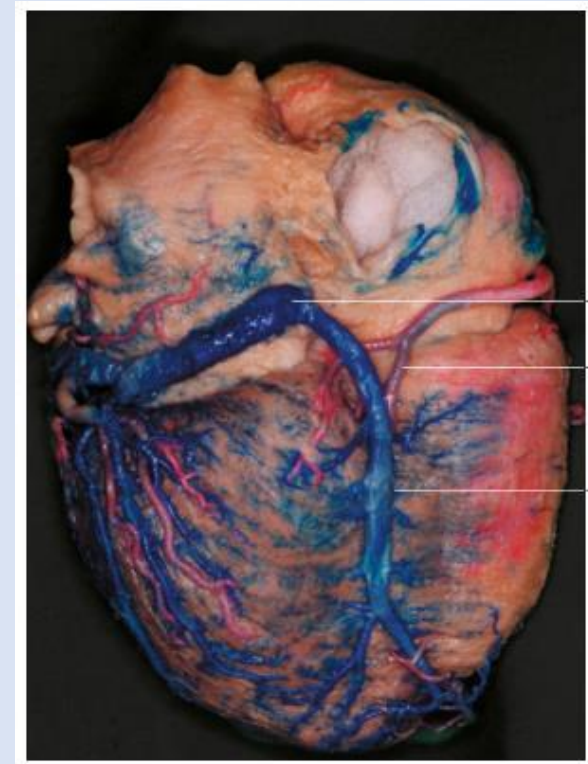
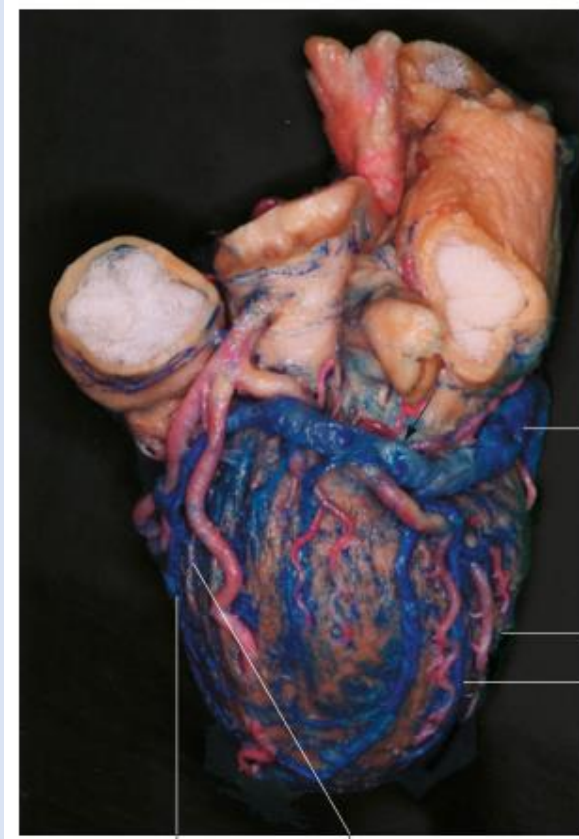
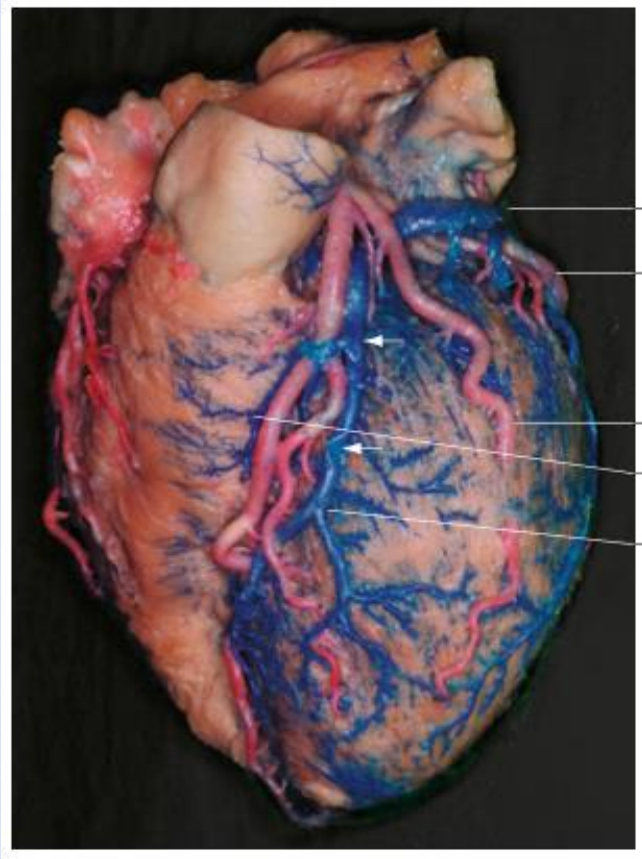
+ Venae cordis minimae

# Vasa privata → a szív vénái





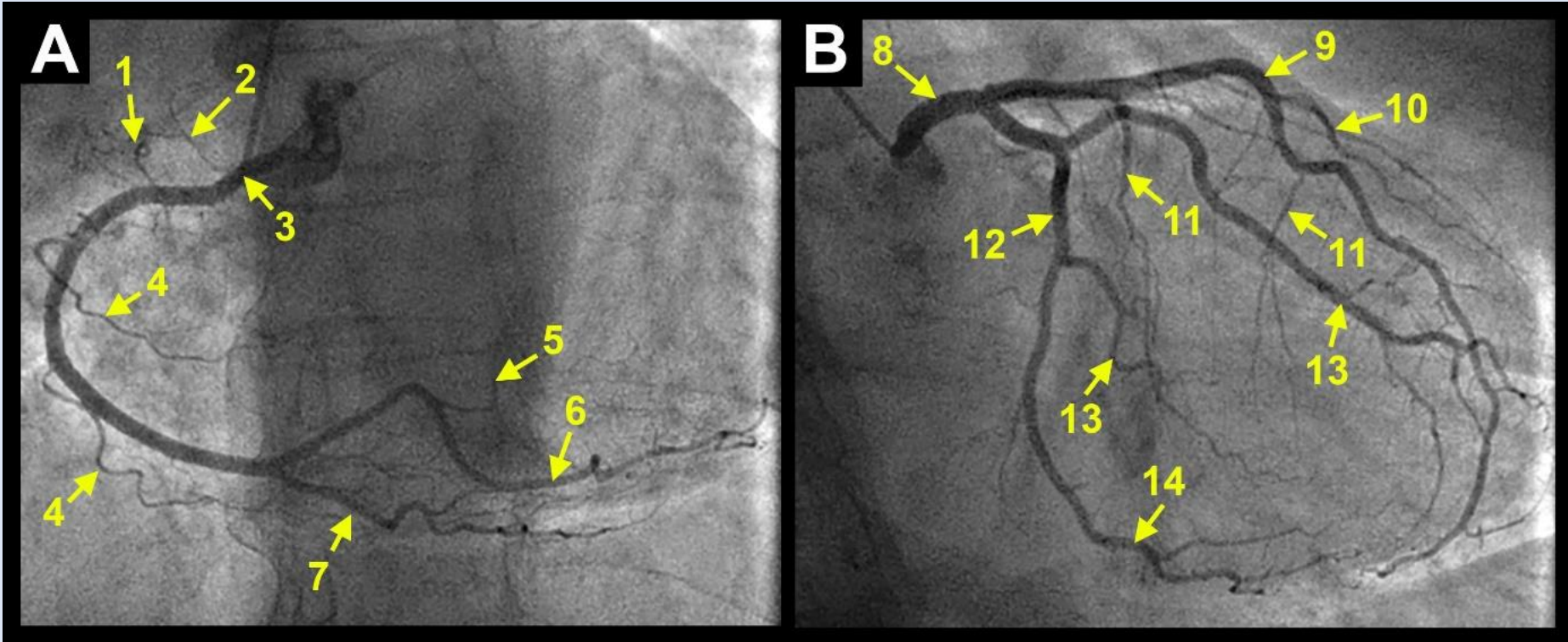
# A szív vénái és a koszorúerek



# Koronarographia

jobb koszorúér

bal koszorúér



Zala Megyei Szent Rafael Kórház

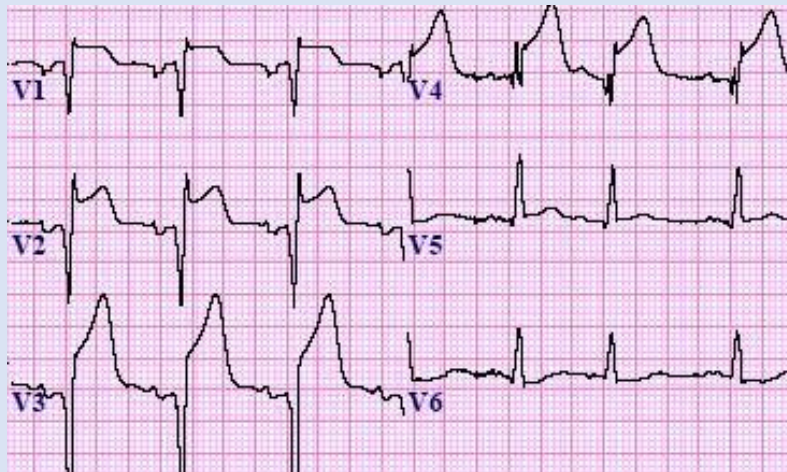
**1:** Ramus nodi sinuatrialis: **2:** Ramus coni arteriosi, **3:** Arteria coronaria dextra,  
**4:** Rami marginales dextrae, **4:** Ramus interventricularis posterior, **5:** Ramus nodi atrioventricularis,  
**6:** Ramus posterolateralis dexter, **7:** Ramus interventricularis posterior

**8:** Arteria coronaria sinistra, **9:** Ramus interventricularis anterior, **10:** Ramus lateralis,  
**11:** Rami interventriculares septales, **12:** Ramus circumflexus, **13:** Rami marginales sinistrae,  
**14:** Ramus interventricularis posterior

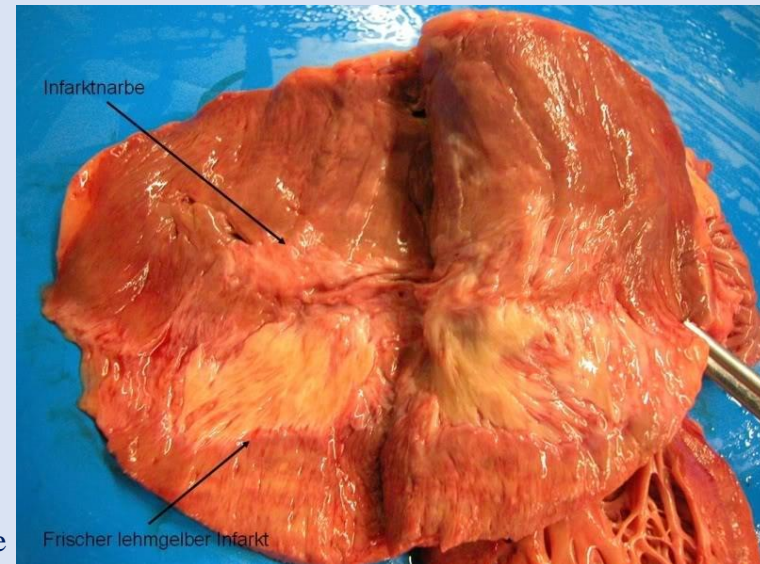


# Szívinfarktus

Frank C. Müller, Baden-Baden



<https://www.healio.com>



<http://www.mikroskopie-forum.de>

# A koszorúérszűkületek katéterintervenciós terápiája: ballondilatatio és stentbeültetés

<http://www.kardiologie-luedenscheid.de>

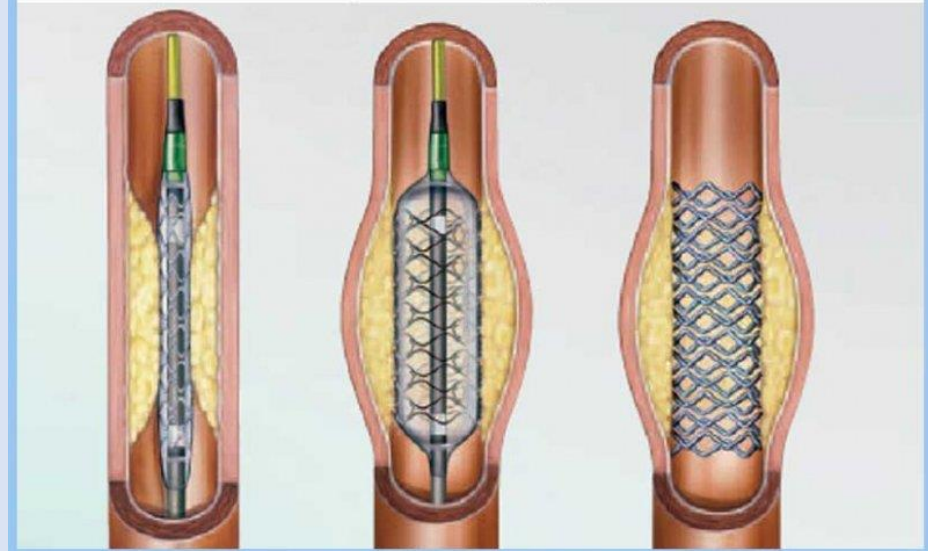


<https://www.ndr.de>



<http://www.auw-media.de>

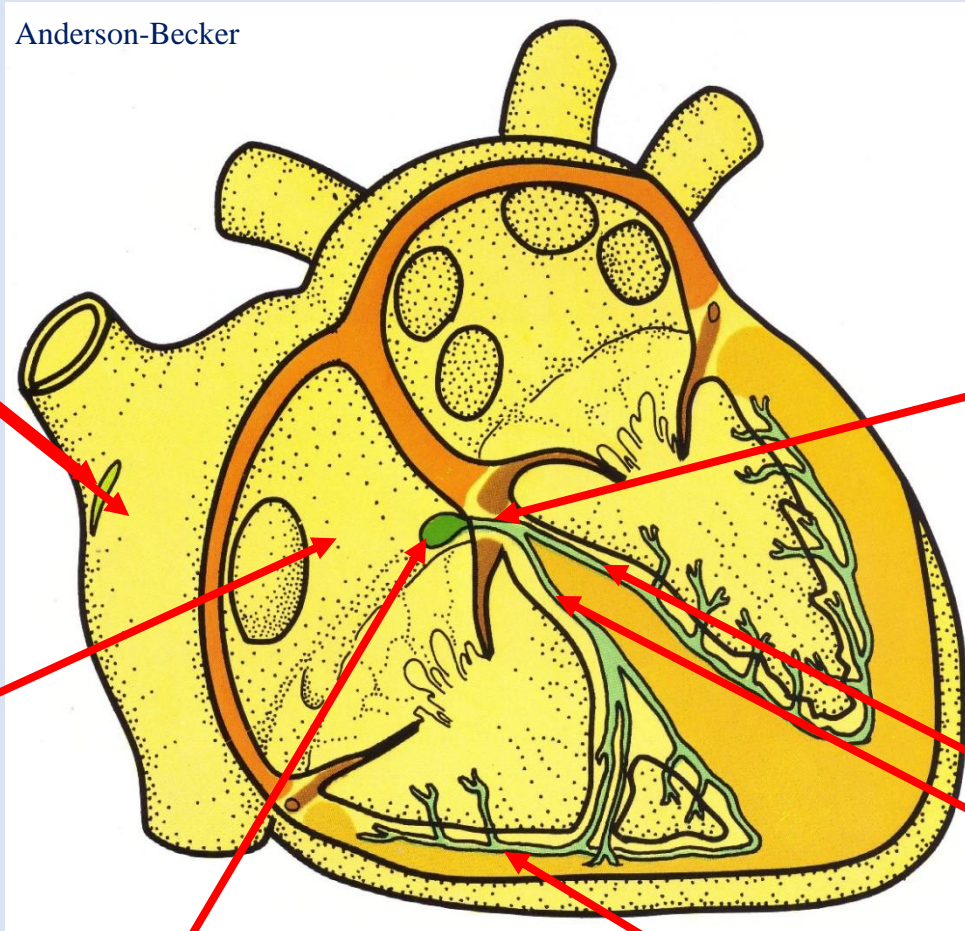
Schematische Darstellung einer Stentimplantation



<http://www.kardiologie-peine.de>



# A szív ingerületképző és -vezető rendszere



Szinuszcsomó  
- nodus sinuatrialis  
(Keith-Flack-csomó)

A jobb pitvar  
myocardiuma

Pitvar-kamrai csomó  
- nodus atrioventricularis  
(Aschoff-Tawara-csomó)

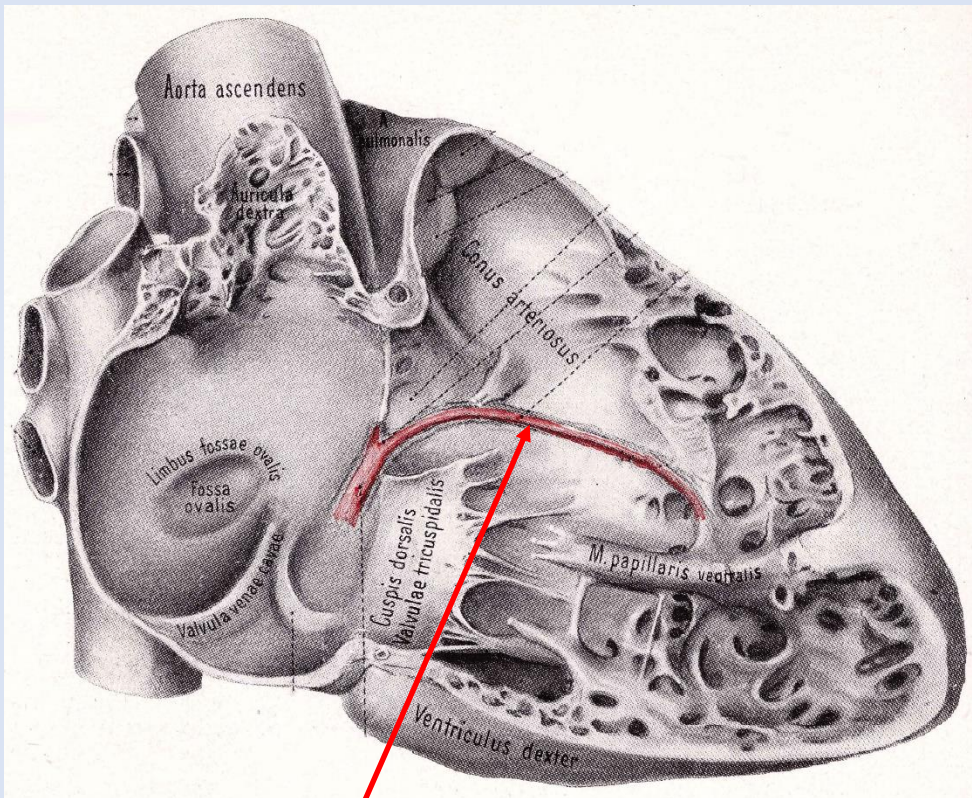
Pitvar-kamrai köteg  
- fasciculus  
atrioventricularis  
(His-köteg)

Jobb és bal  
Tawara-szár  
- Crus sinistrum  
- Crus dextrum

Rami subendocardiales  
(Purkinje-rostok)

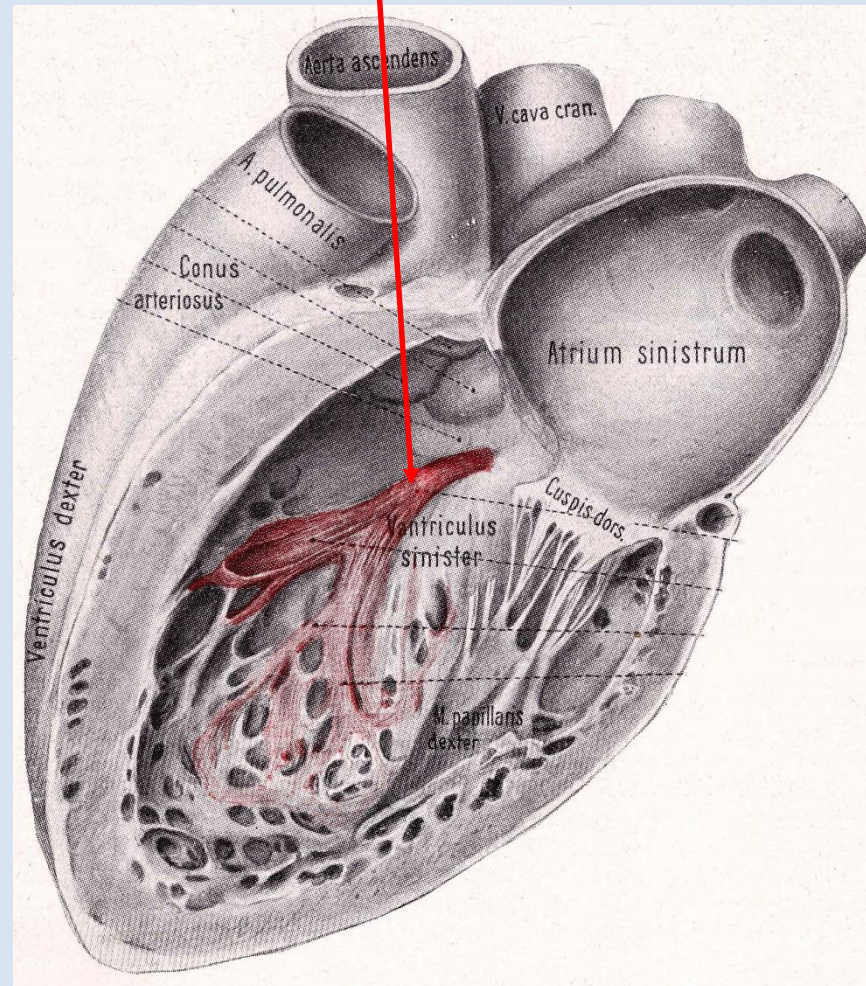


# Ingerületvezető rendszer



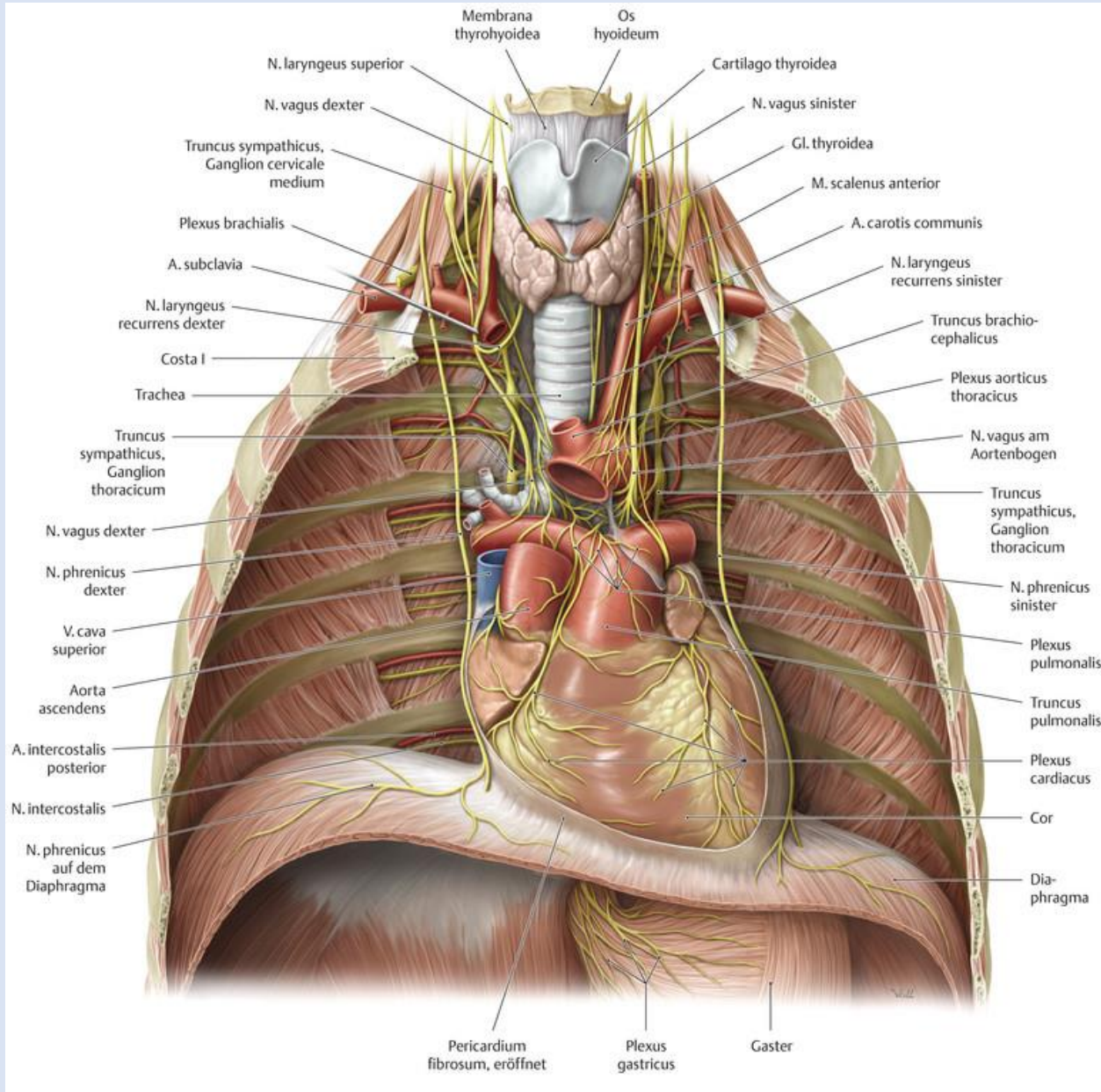
jobb Tawara-szár

bal Tawara-szár





# Extracardialis beidegzés



Parasympathicus:

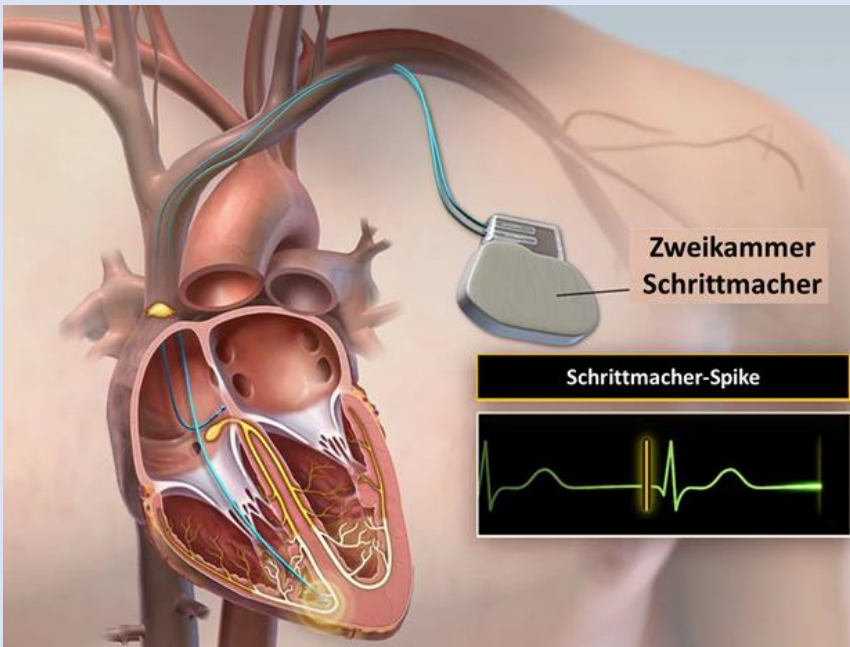
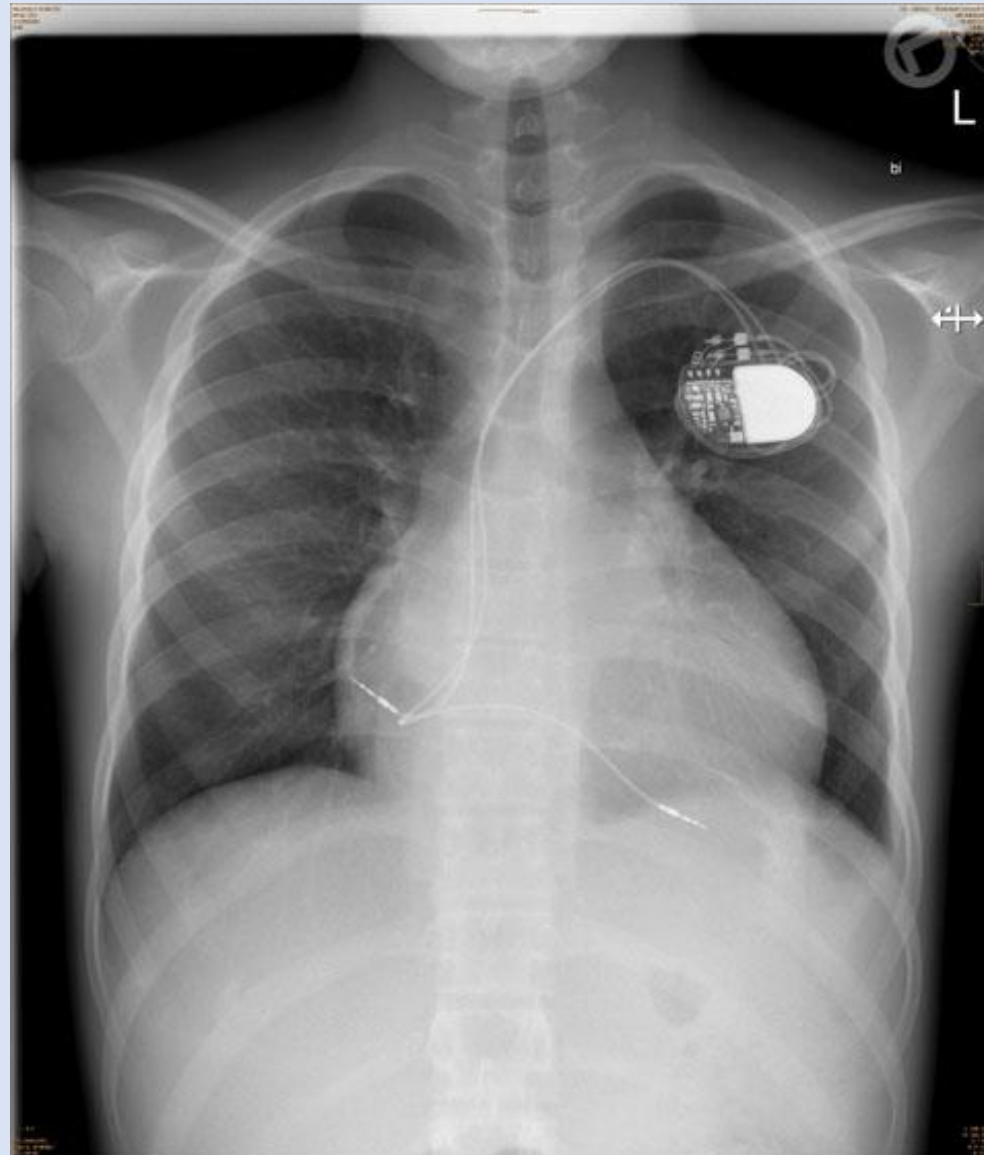
→ Nervus vagus (N. X.)

Sympathicus:

→ Truncus sympathicus  
(nyaki dúcok)

# Pacemaker

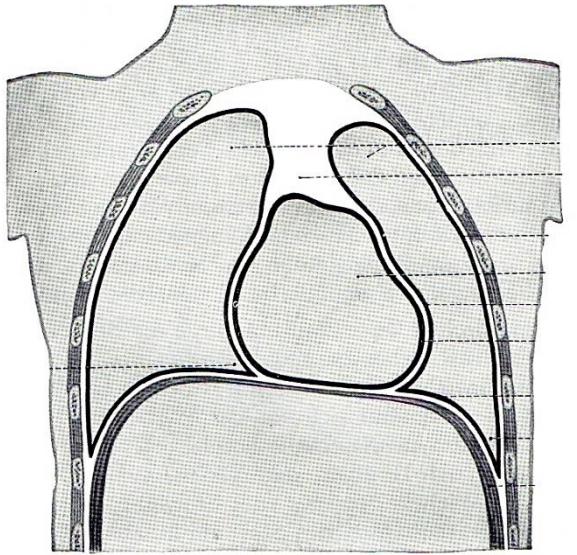
<http://www.dr-antretter.at>



<http://www.osypka-herzzentrum-muenchen.de>



# Pericardium



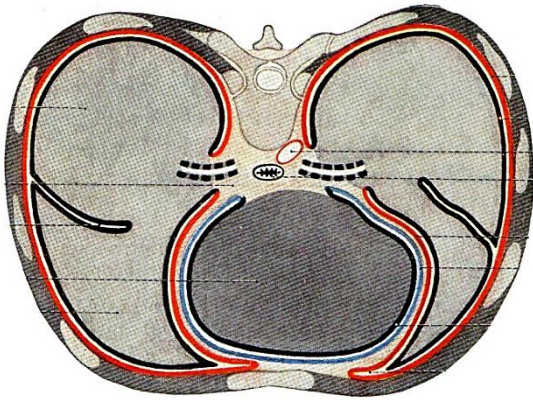
A 3 nagy **savós hártya** (pericardium, pleura, peritoneum) egyike

Két lemezből tevődik össze:

- a) lamina parietalis pericardii / pericardium parietale  
ennek két rétege: külső fibrosus + belső serosus
- b) lamina visceralis pericardii / pericardium viscerale = **epicardium**

a) és b) között: cavum pericardii

benne: liquor pericardii (kb. 50 ml, halványsárga, serosus folyadék)



# Pericardium

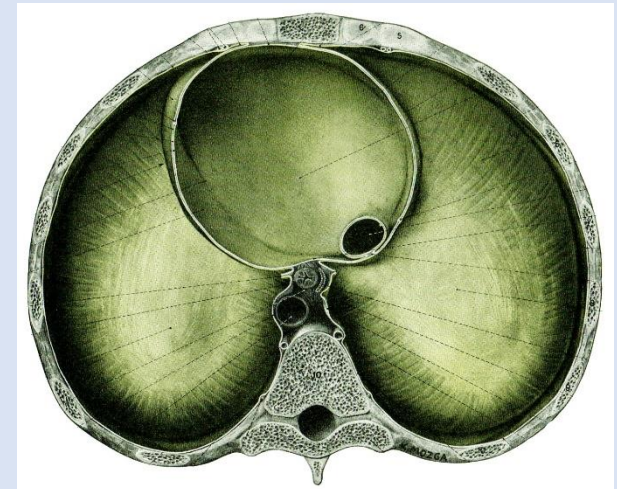
Környezetéhez szorosan rögzített a parietalis lemez fibrosus rétegénél fogva:

- ligg. sternopericardiaca (szegycsonthoz)
- centrum tendineum (rekeszizomhoz)
- porta arteriosa (artériás áthajlás)
- porta venosa (vénás áthajlás)
- lig. tracheopericardiacum (légcsőhöz)

spatium pleuromediastinale (n. phrenicus, a. et v. pericardiocophrenica)



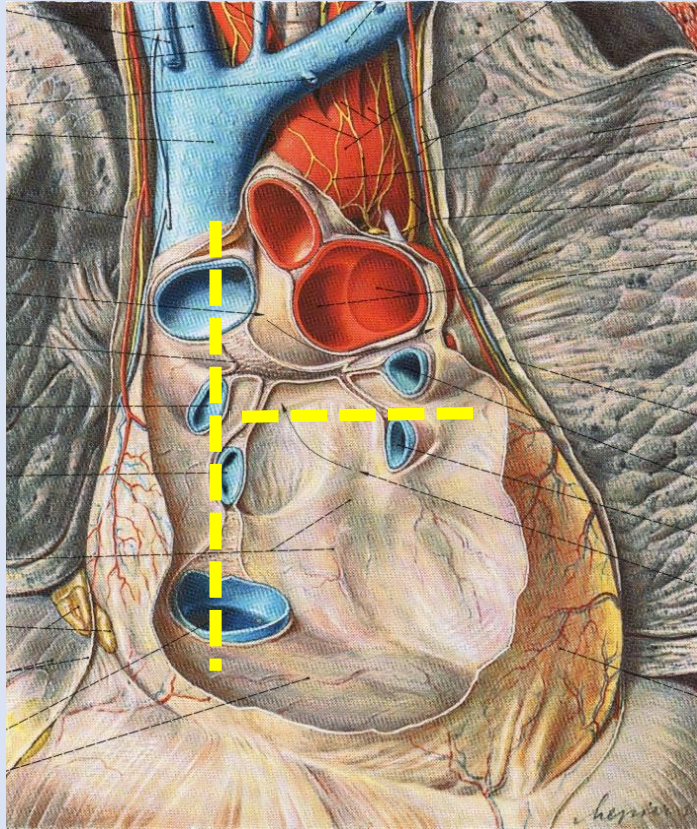
Pernkopf



Pernkopf

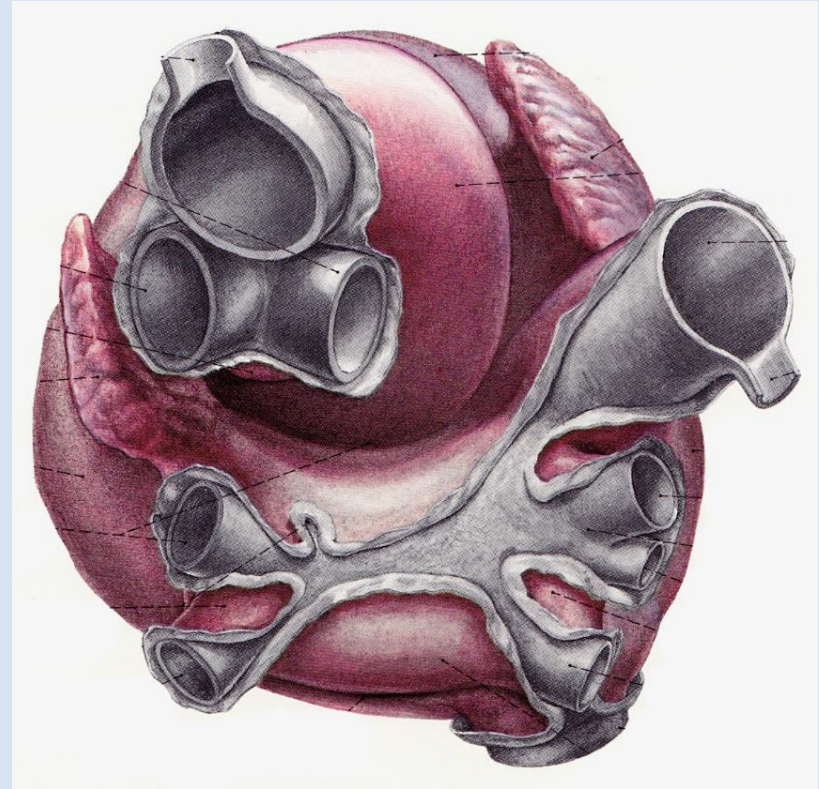


# Pericardium lemezeinek áthajlása



Sobotta

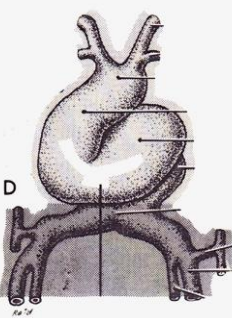
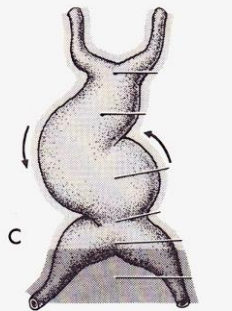
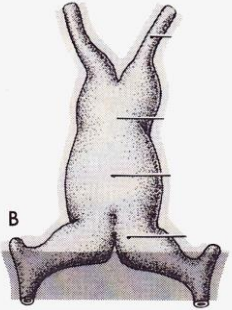
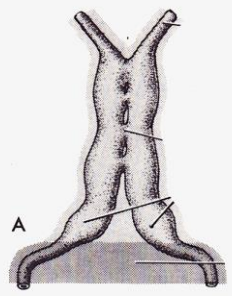
Sappey-féle  
„T“



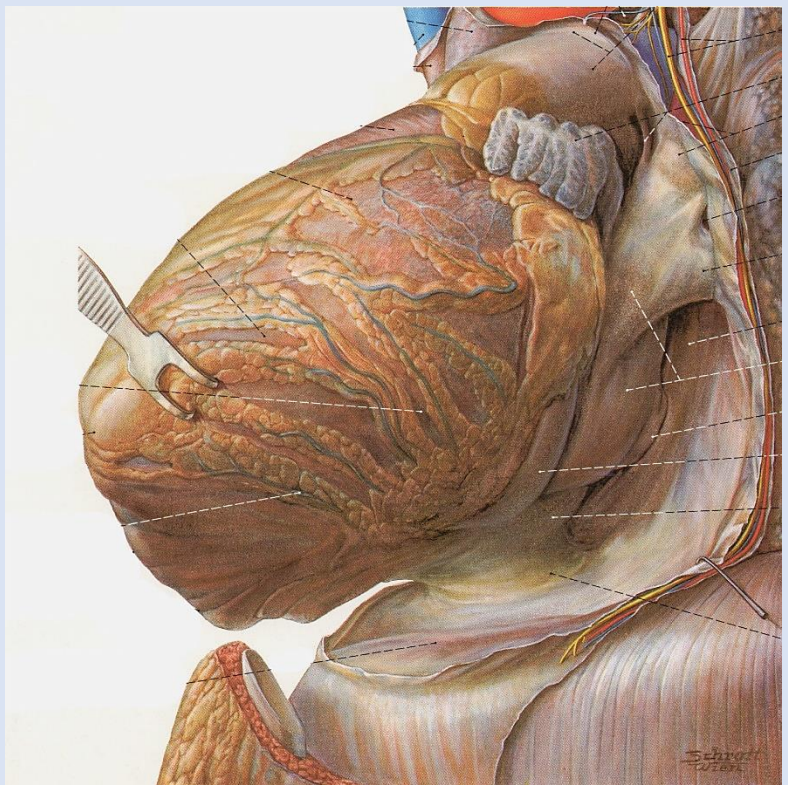
Pernkopf



# Sinus pericardii

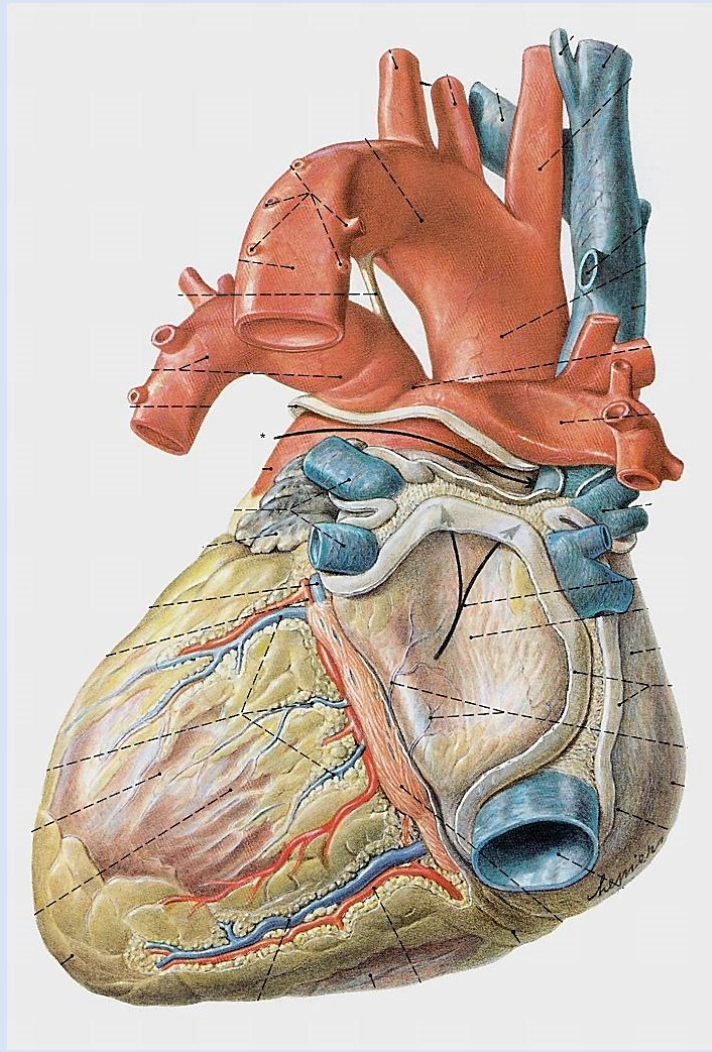


Pernkopf



Sinus obliquus pericardii

Sinus transversus pericardii



Sobotta



# Sinus transversus pericardii





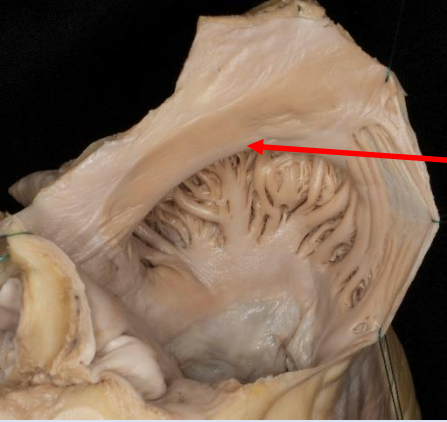
# Sinus obliquus pericardii





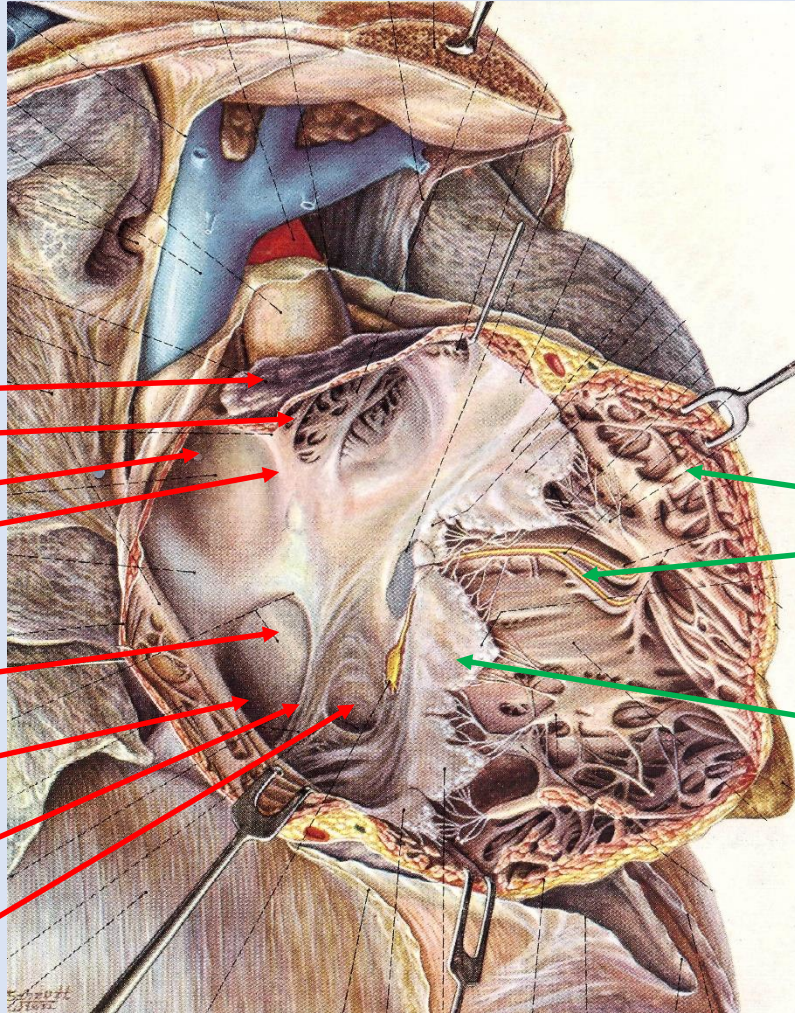
# A jobb szívfél

Crista terminalis



## Jobb pitvar:

- Auricula dextra
- Musculi pectinati
- Vena cava superior
- Crista terminalis
- Septum interatriale
- Fossa ovalis
- Limbus fossae ovalis
- Vena cava inferior
- Valvula venae cavae inf.  
(→Eustach)
- Ostium sinus coronarii
- Valvula sinus coronarii  
(→Thebesius)



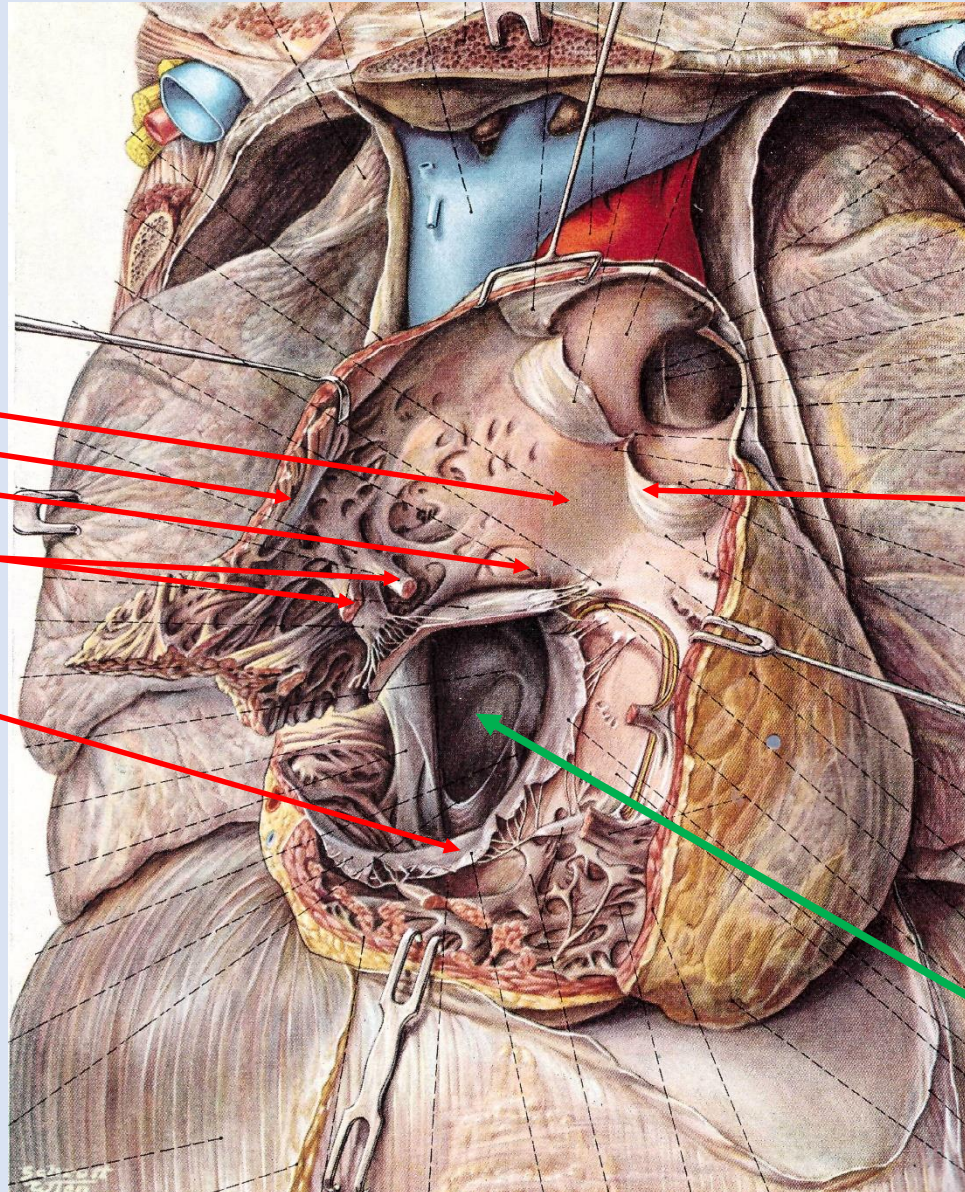
## Jobb kamra:

- Trabeculae carneae
- Trabecula septomarginalis
- Crista supraventricularis
- Valva tricuspidalis

Pernkopf



# A jobb szívfél



## Jobb kamra:

Infundibulum

Trabeculae carneae

Crista supraventricularis

Trabecula septomarginalis

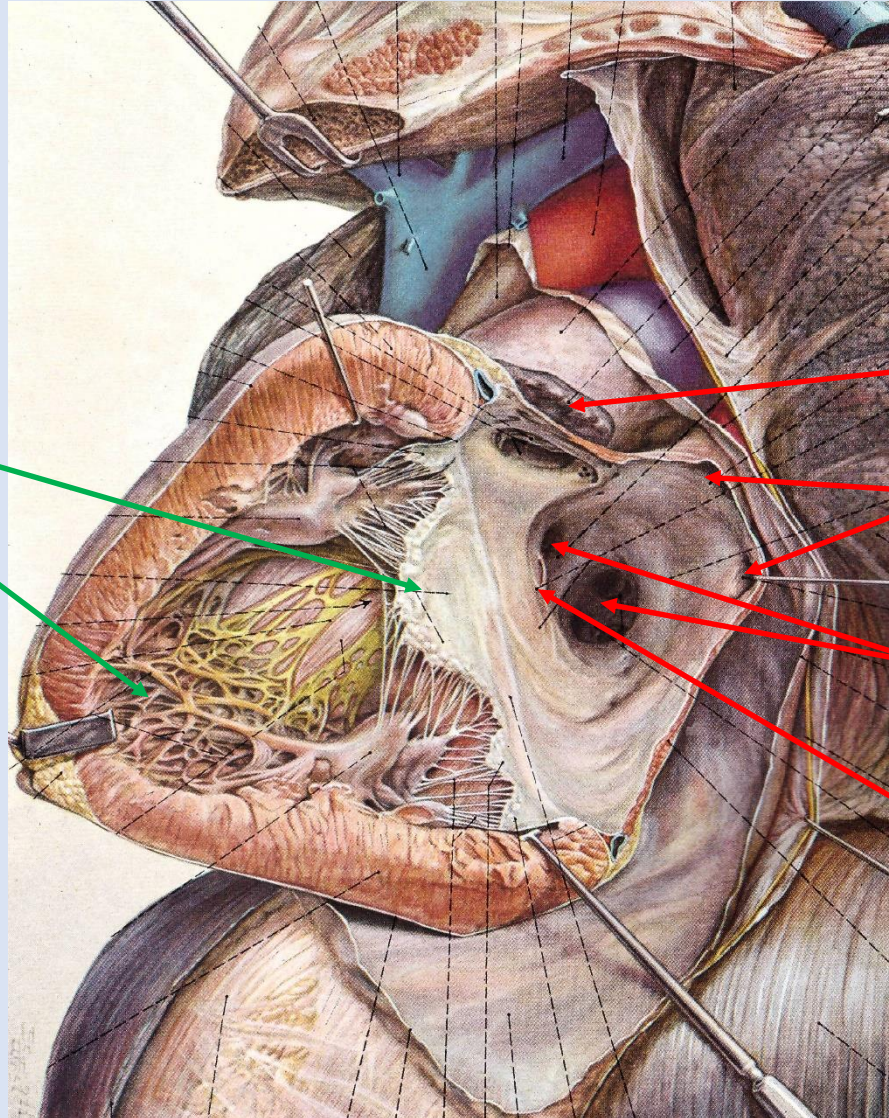
Valva tricuspidalis

Valva trunci  
pulmonalis

Jobb pitvar



# A bal szívfél



## Bal kamra:

Valva mitralis

Trabeculae carneae

## Bal pitvar:

Auricula sinistra

Vena pulmonales  
sinistrae

Venae pulmonales  
dextrae

Septum interatriale



# A bal szívfél

## Bal kamra:

Myocardium

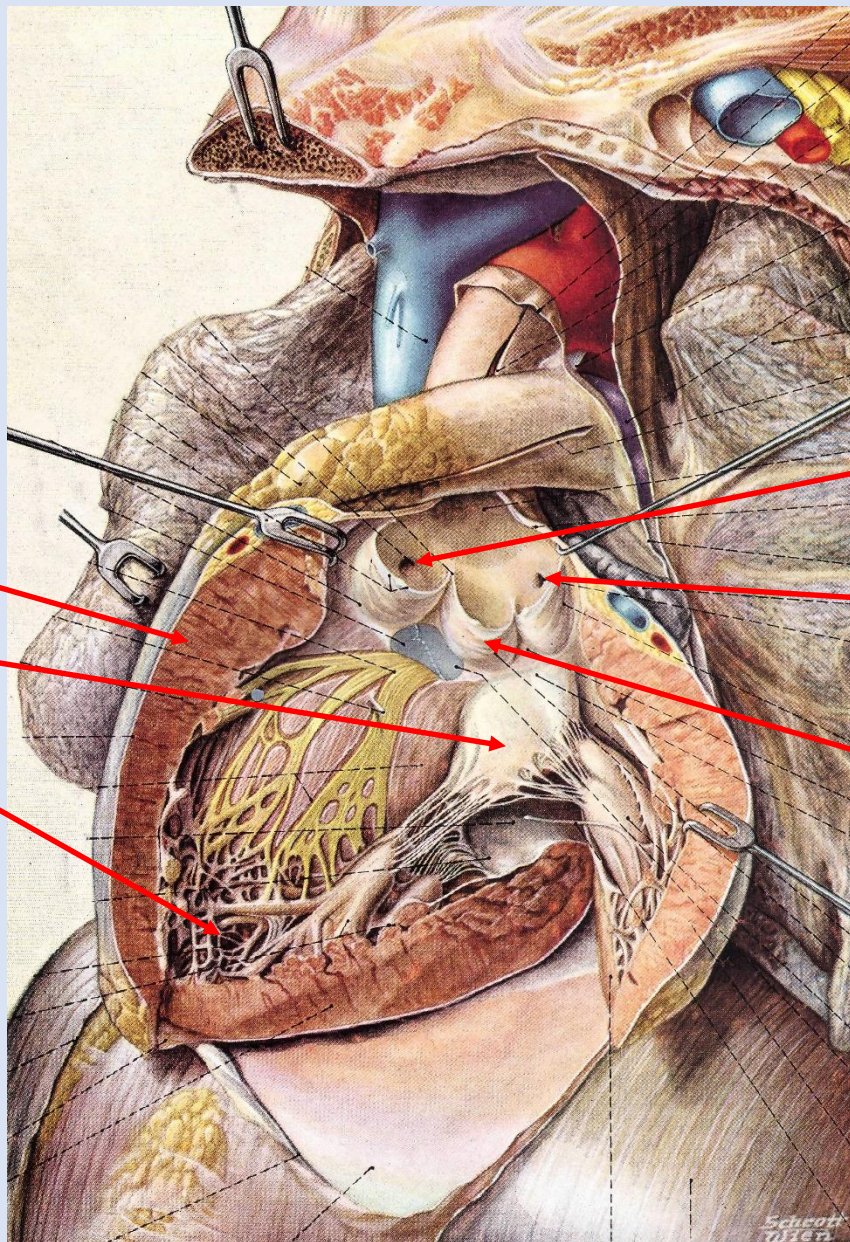
Valva mitralis

Trabeculae carneae

Arteria coronaria  
dextra

Arteria coronaria  
sinistra

Valva aortae





# Mediastinum – gátorüreg

## Mediastinum~

### ~ **posterius**

(*V. azygos/hemiazygos, Aorta thoracica, Oesophagus, Ductus thoracicus, Nn. vagi, N. laryngeus recurrens, Truncus sympathicus, intercostalis képletek*)

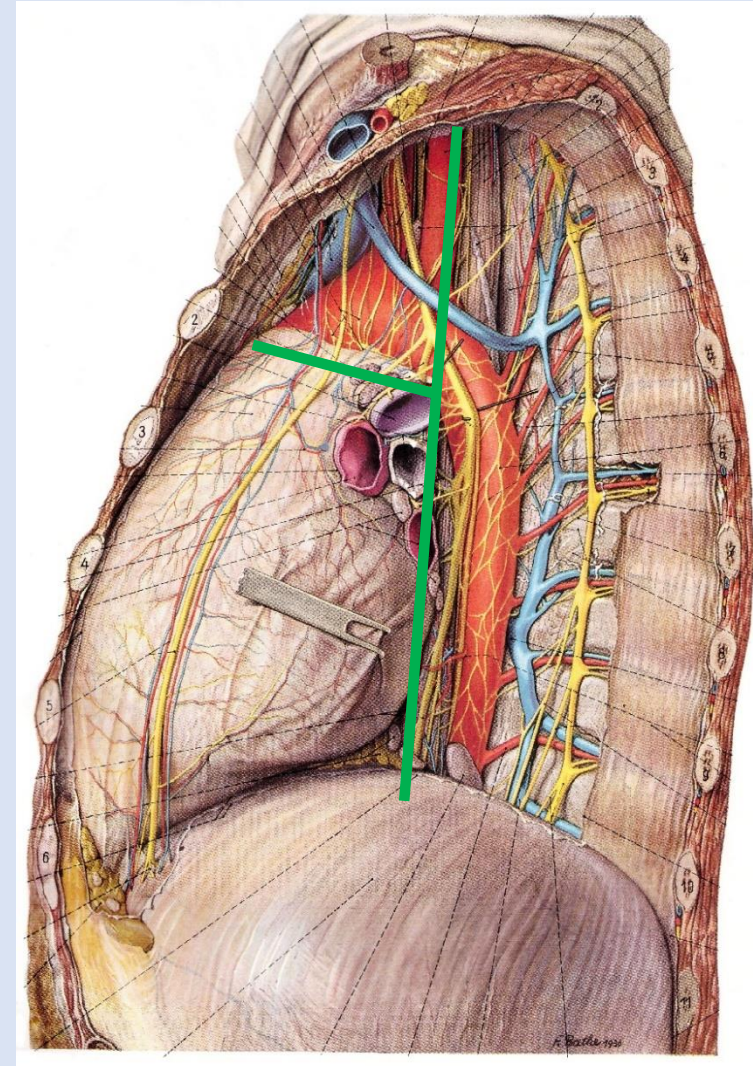
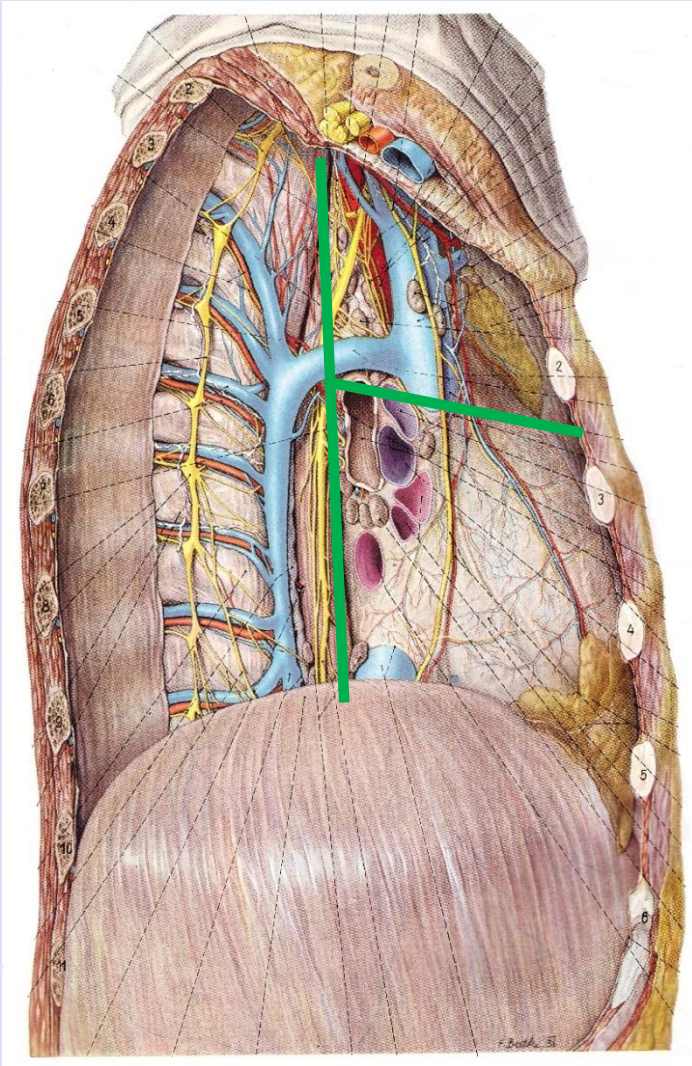
### ~ **anterior**

#### → supracardiacum

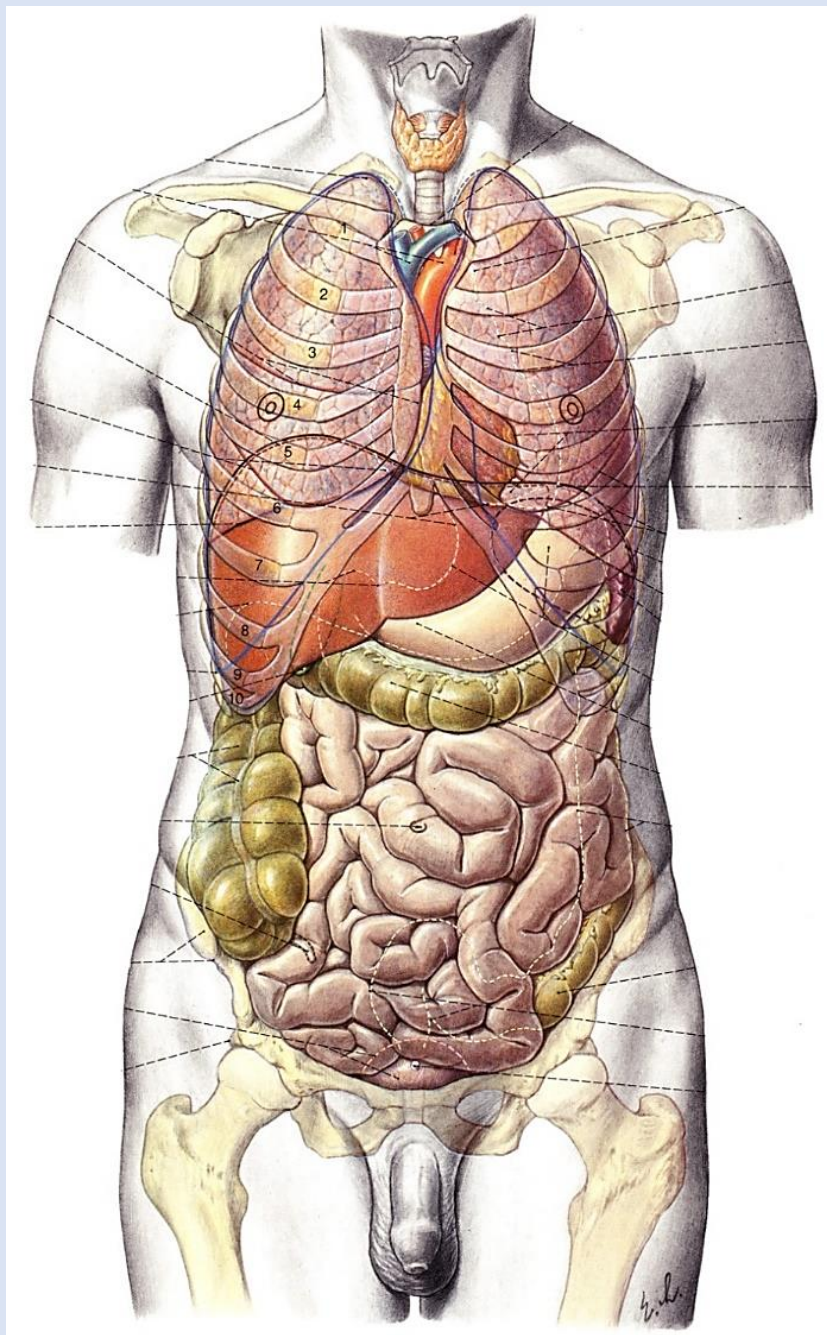
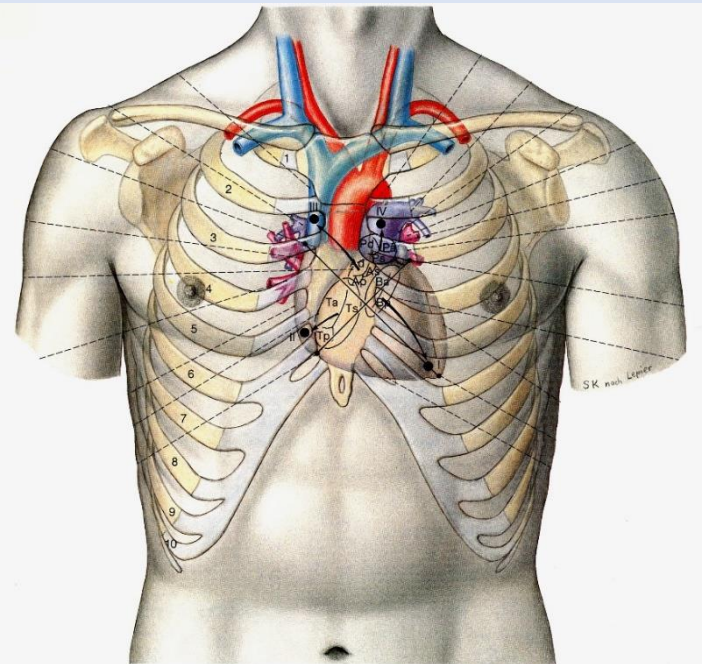
(*Thymus, Vv. Brachiocephalicae, V. cava superior, Arcus aortae és ágai, Arteriae pulmonales, Trachea, Nn. Phrenici, Nn. vagi*)

#### → cardiacum

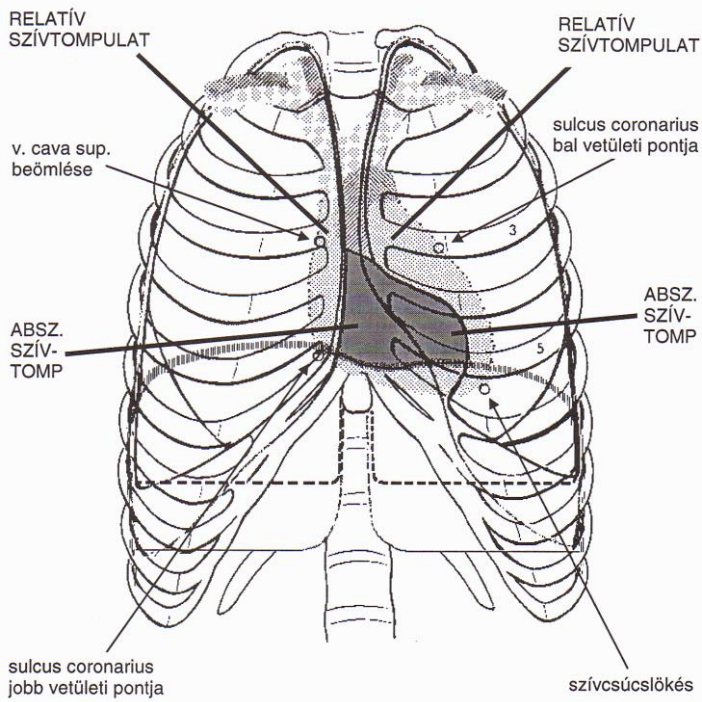
(*Szív*)





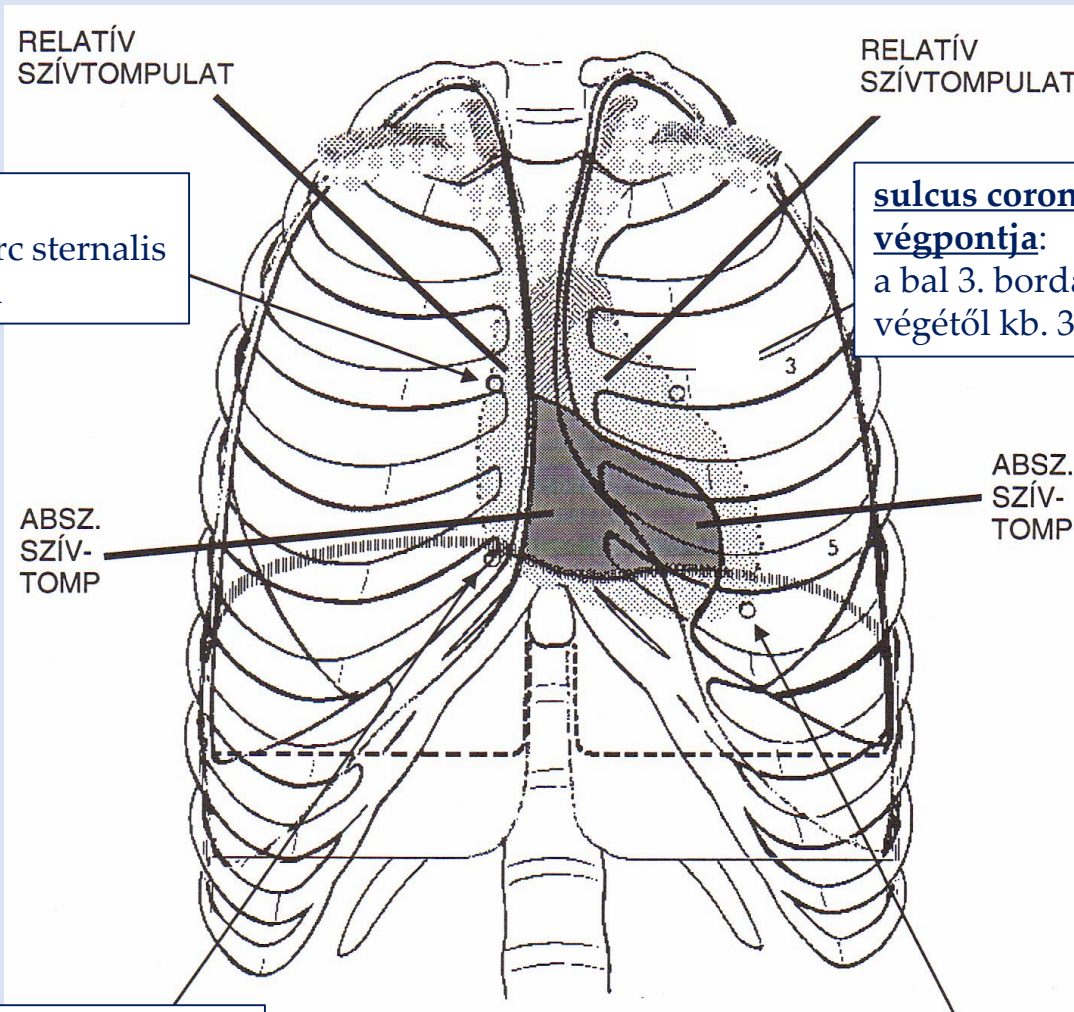


# Situs cordis





# Situs cordis



VCS beömlése:  
jobb 3. bordaporc sternalis  
végétől kb. 2 cm

**sulcus coronarius bal vetületi  
végpontja:**  
a bal 3. bordaporc sternalis  
végétől kb. 3 cm

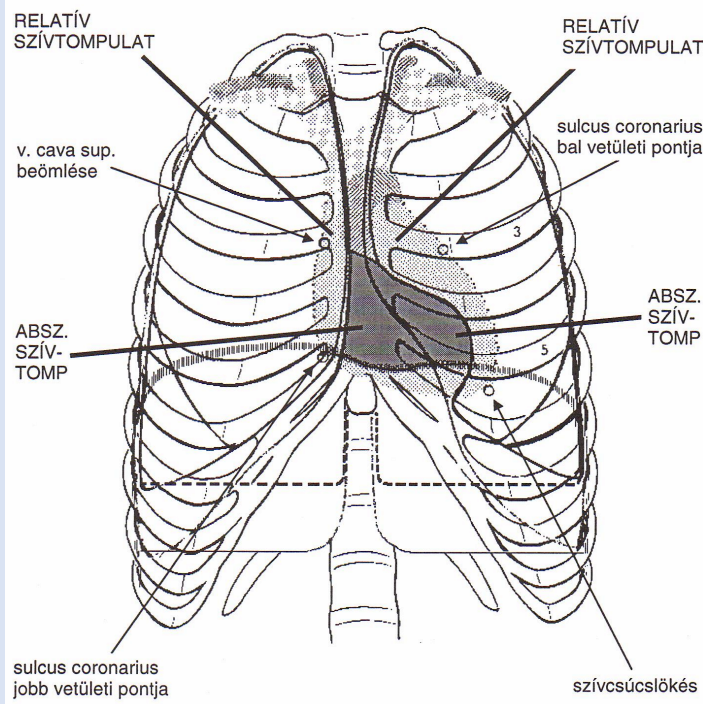
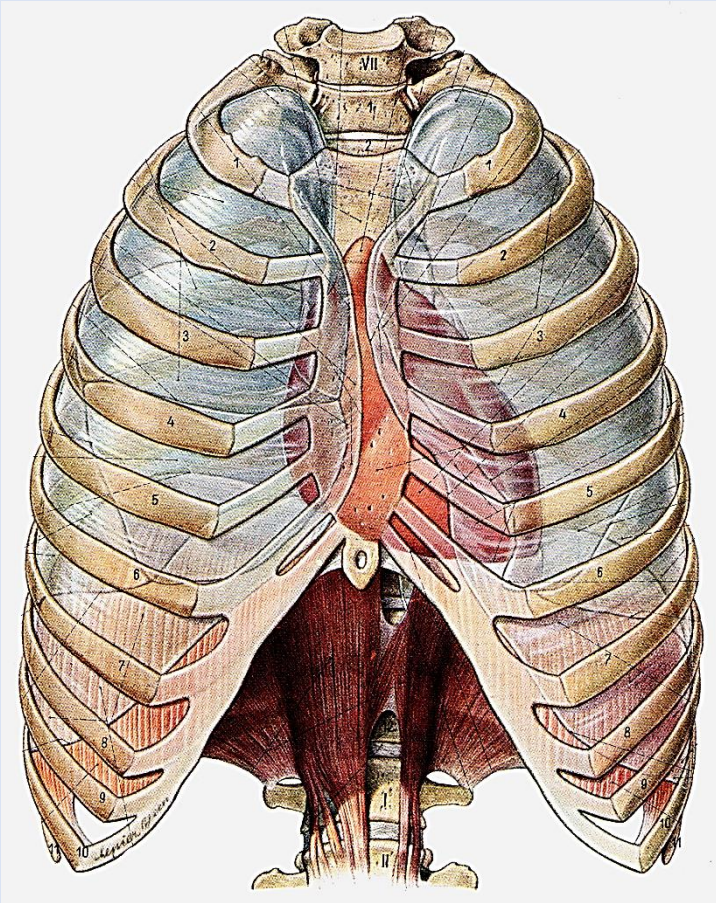
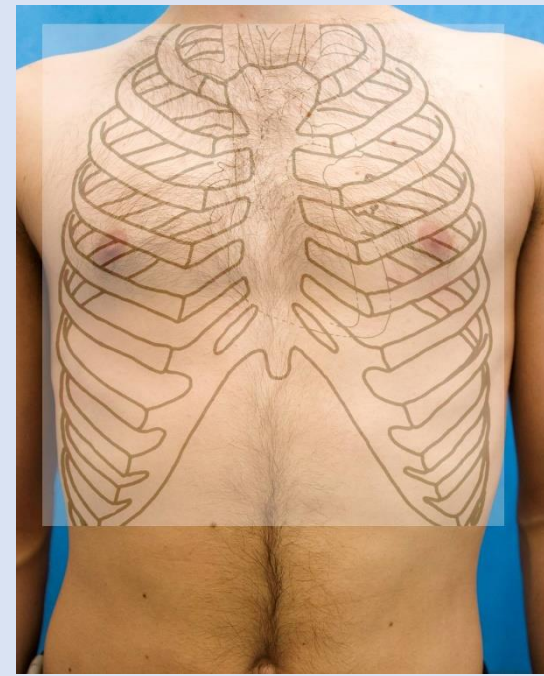
ABSZ.  
SZÍV-  
TOMP

ABSZ.  
SZÍV-  
TOMP

**sulcus coronarius jobb vetületi  
végpontja:**  
a jobb 6. bordaporc sternalis  
végétől kb. 2 cm

szívcsúslökés helye: bal 5. bordaközben a  
középvonaltól 8 - 10 cm-re

# Szívtompulatok



Pernkopf



# Szívtompulatok

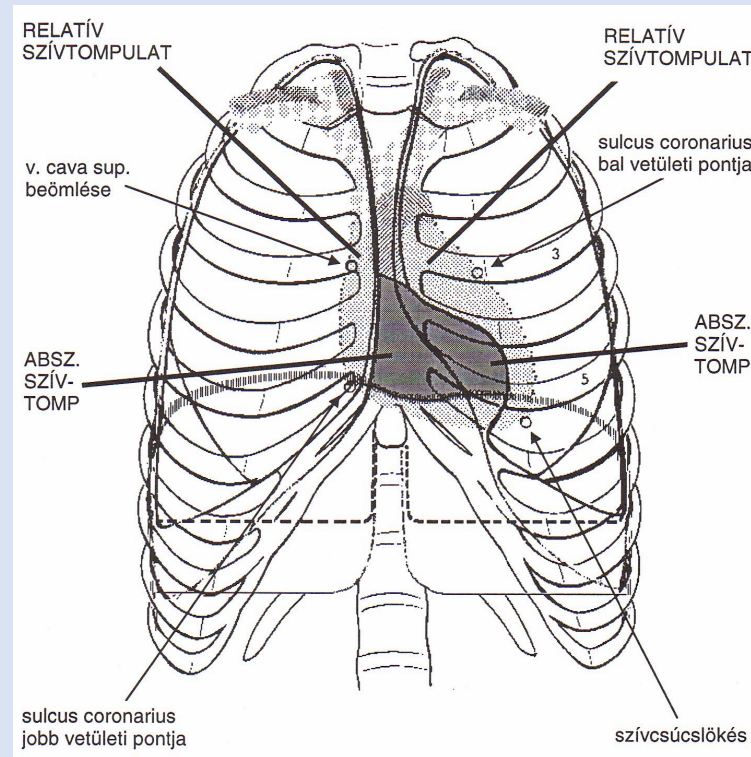
## RELATÍV

az előbbi vetületi pontok íves összekötésével

fizikális vizsgálat során kopogtatva a szívnek vékony tüdőterületekkel fedett része

nagyjából a szív valós nagyságára enged következtetni

ha megnő: pl. szívnagyobbodás  
eltűnhet: pl. pericardialis foly.



## ABSZOLÚT

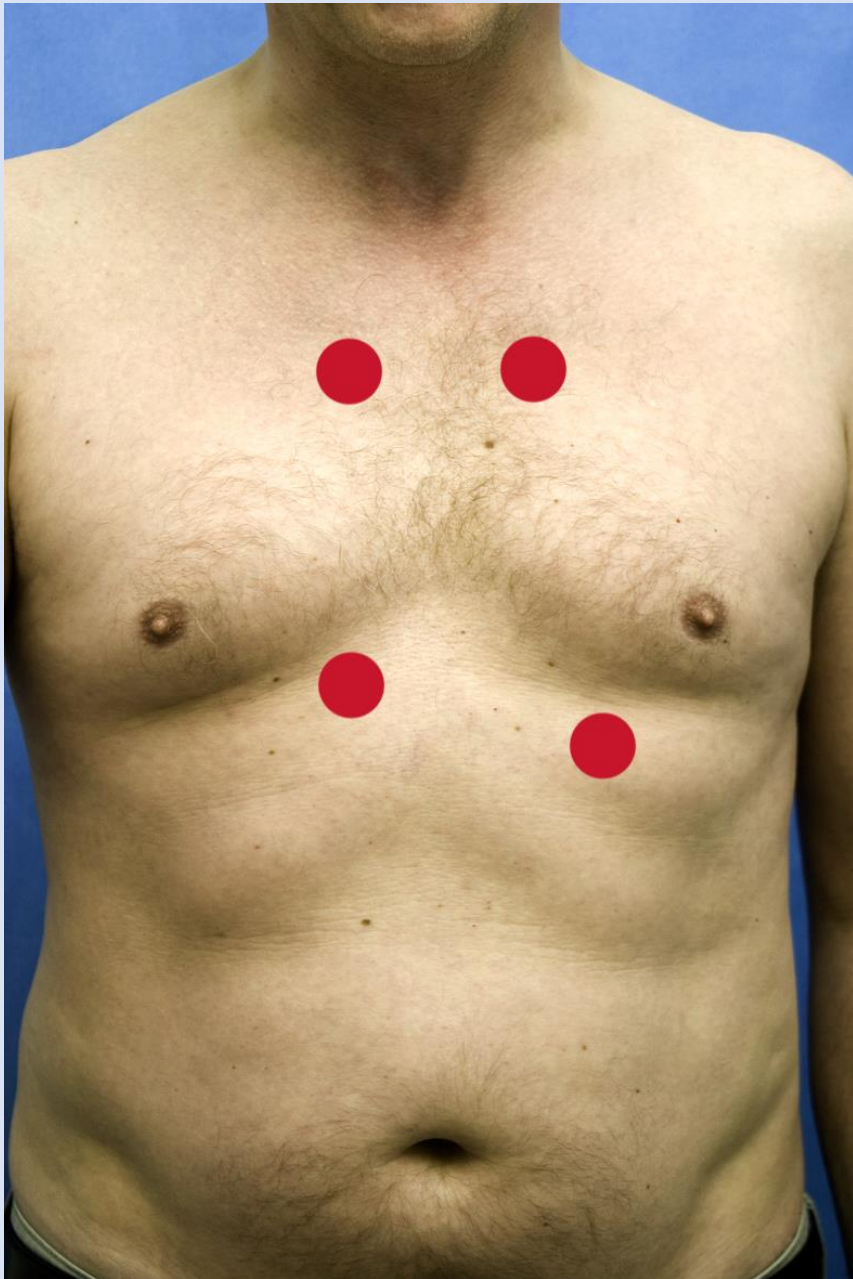
normálisan kisebb, mint a relatív

alsó határuk egyezik; balra a szívcsúslökéstől egy hu. beljebb, fent a 4. borda, jobbra a sternum széle

fizikális vizsgálat során kopogtatva a szívnek a tüdővel nem fedett része

ha megnő: pl. pericardialis folyadék  
eltűnhet: pl. emphysema pulmonis

# Auscultatio



[www.klinikaikozpont.u-szeged.hu](http://www.klinikaikozpont.u-szeged.hu)



# Auscultatio

**Aortabillentyű  
hallgatási helye**

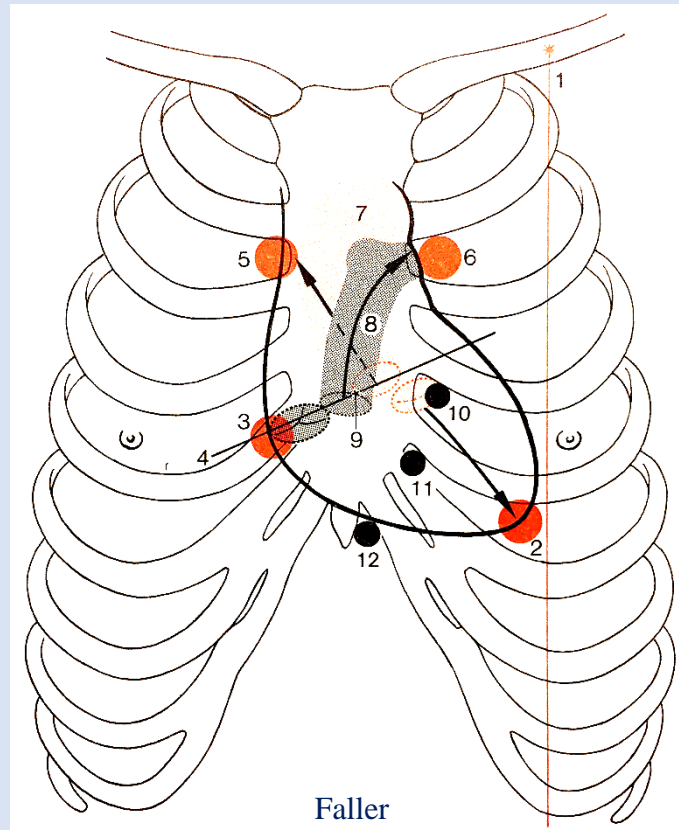
!!!

jobb oldalon a  
2. bordaközben  
parasternalisan

**Pulmonalis billentyű  
hallgatási helye:**

!!!

bal oldalon a 2. bordaközben  
parasternalisan



**Tricuspidalis billentyű  
hallgatási  
helye:**

ált. a jobb 5. borda sternalis vége  
felett

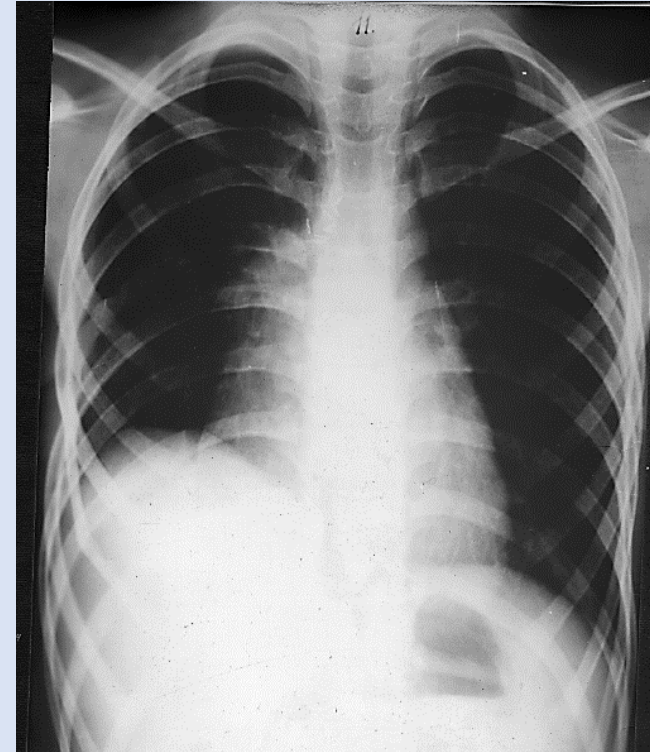
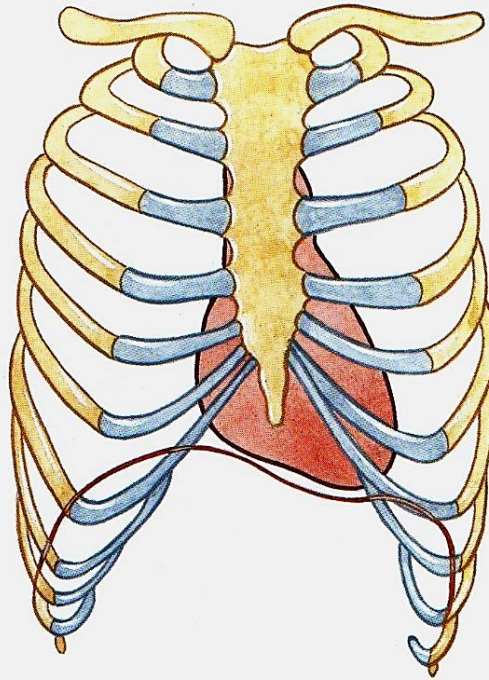
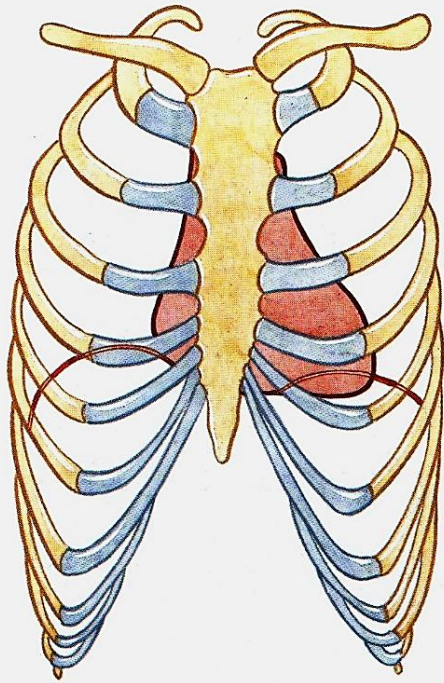
**Mitralis billentyű  
hallgatási helye:**

szívcsúcslökéshelyén





## ...további befolyásoló tényezők



# A szív röntgenképe

