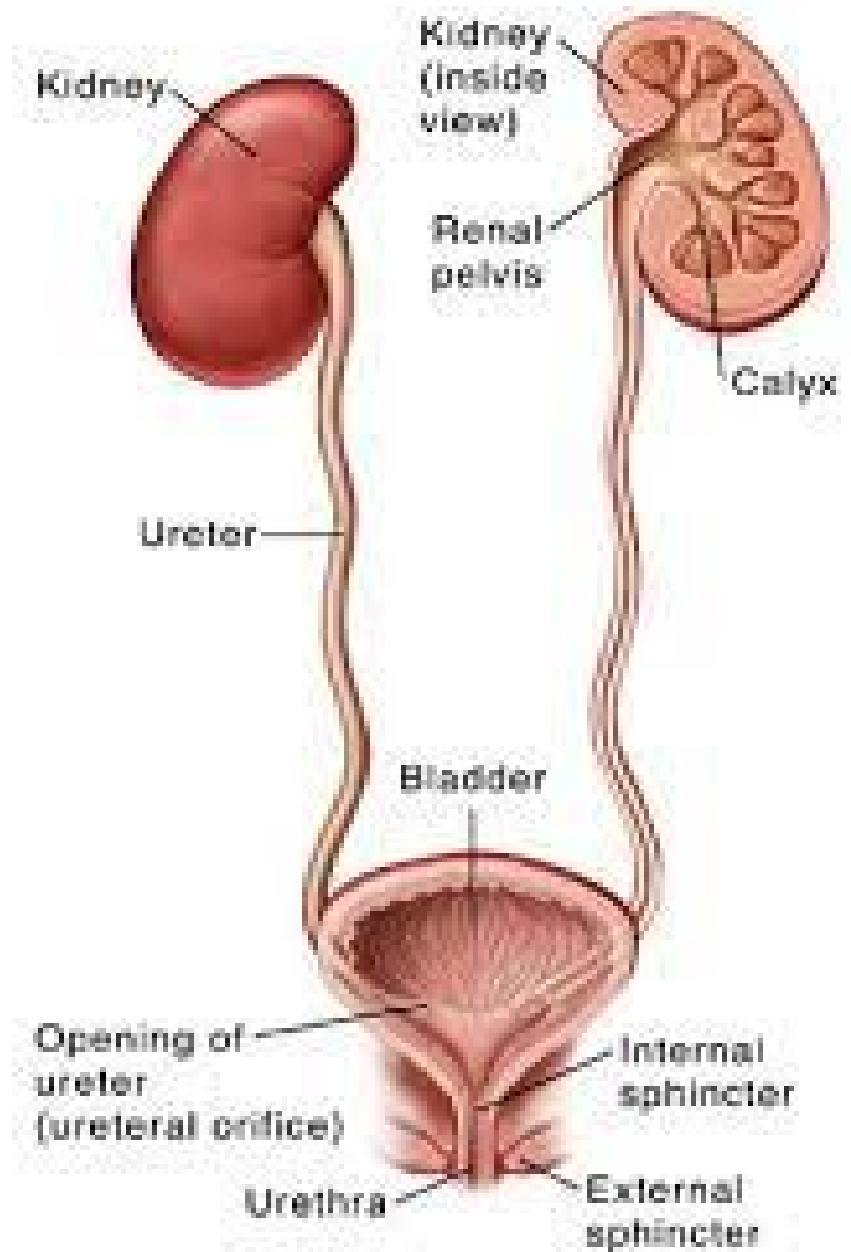
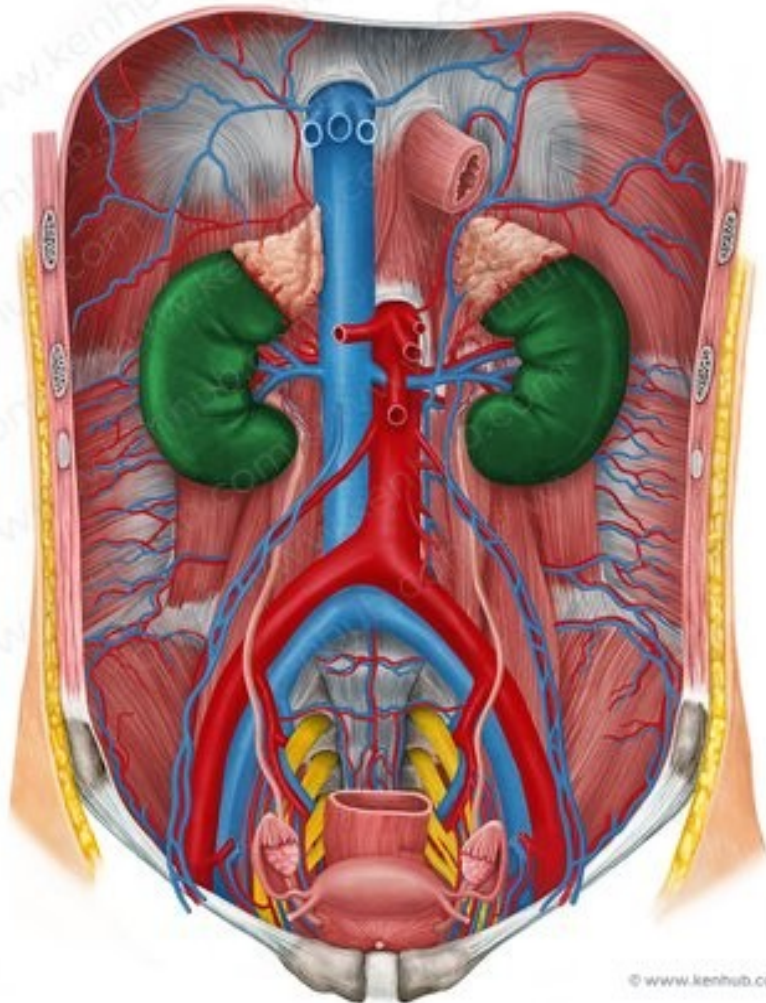
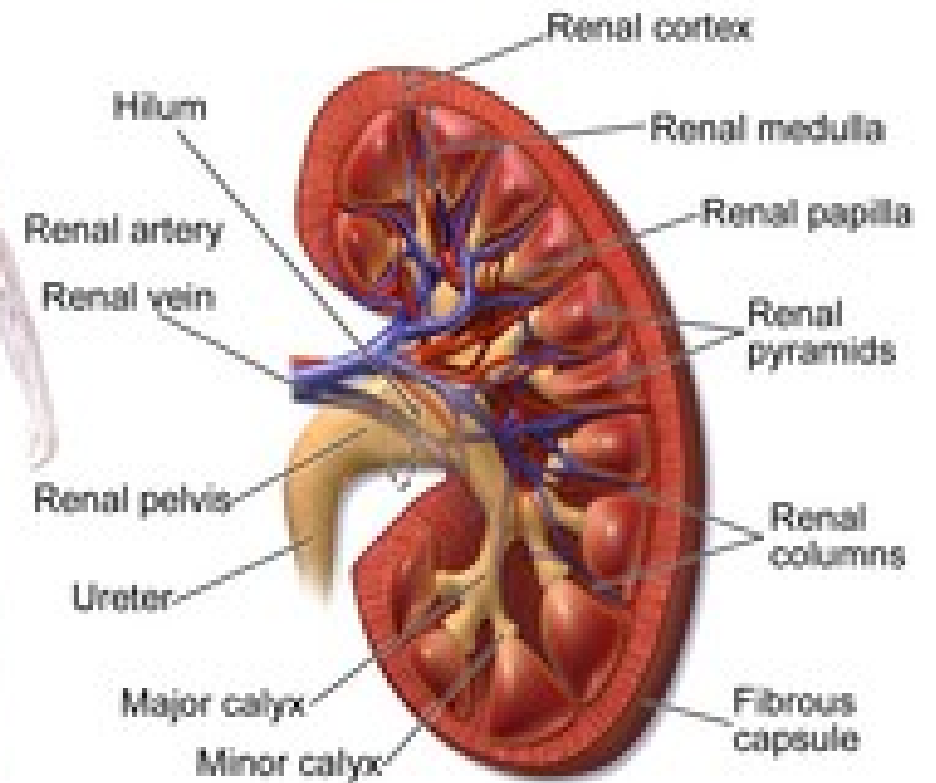
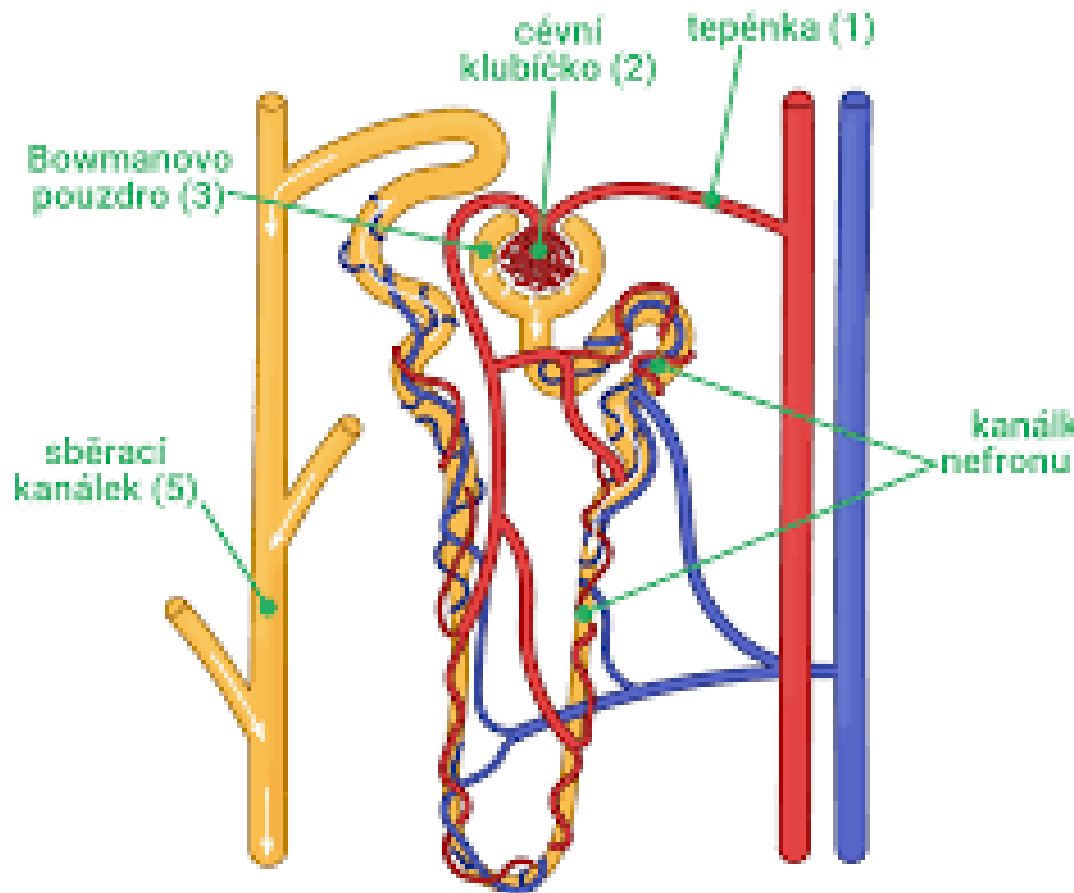


Vylučovací ústrojí



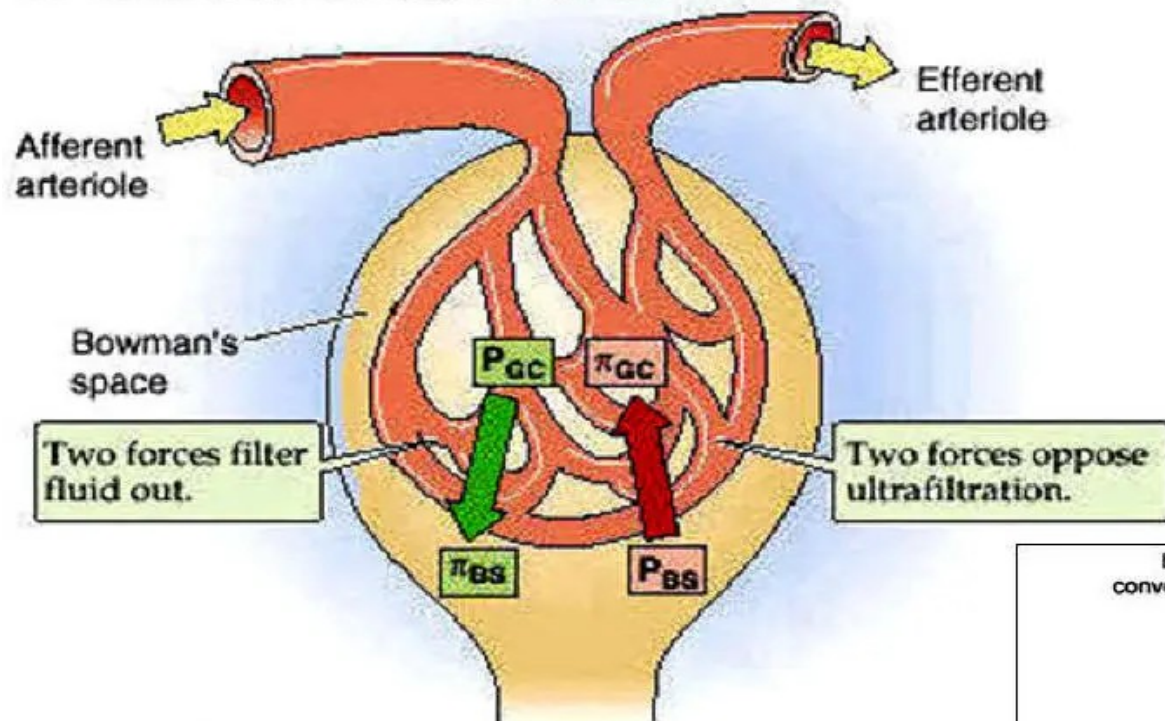
Ledvina, lat. ren

<https://en.wikipedia.org/wiki/Kidney>



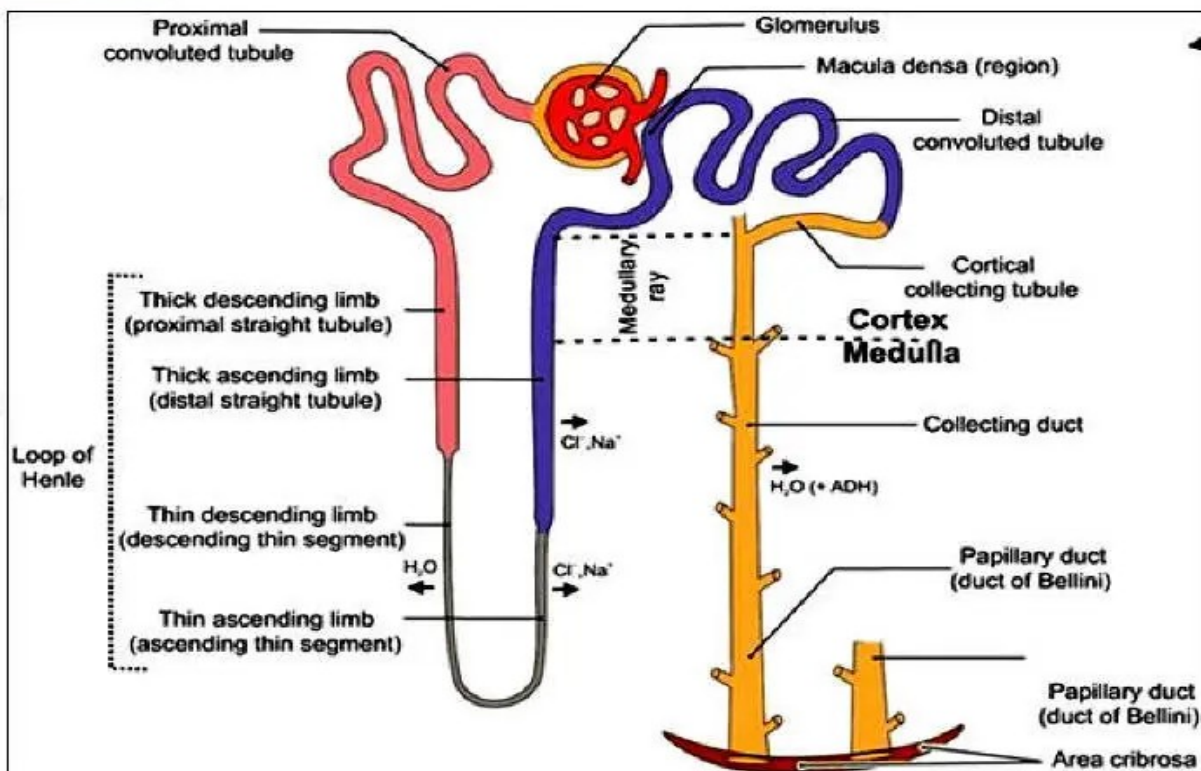
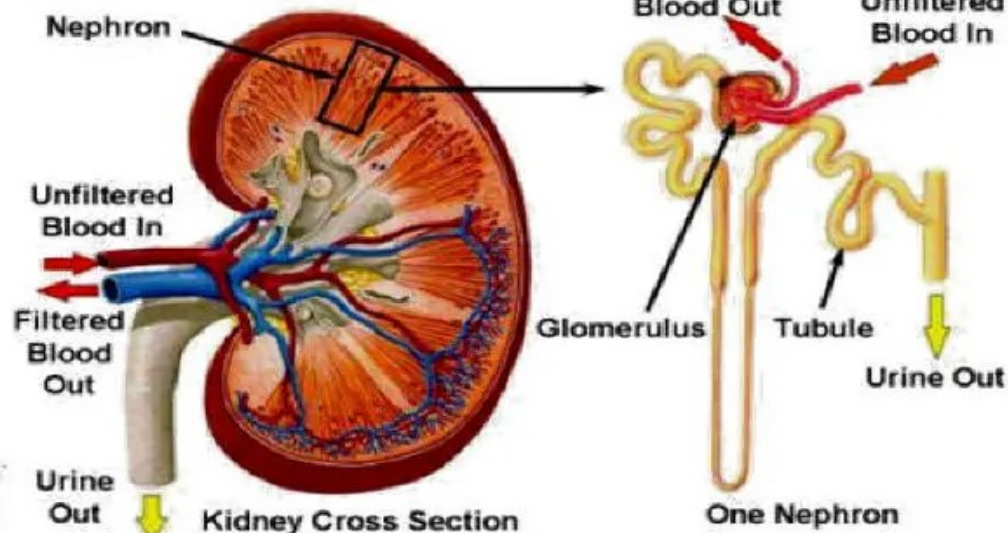
Kidney Anatomy

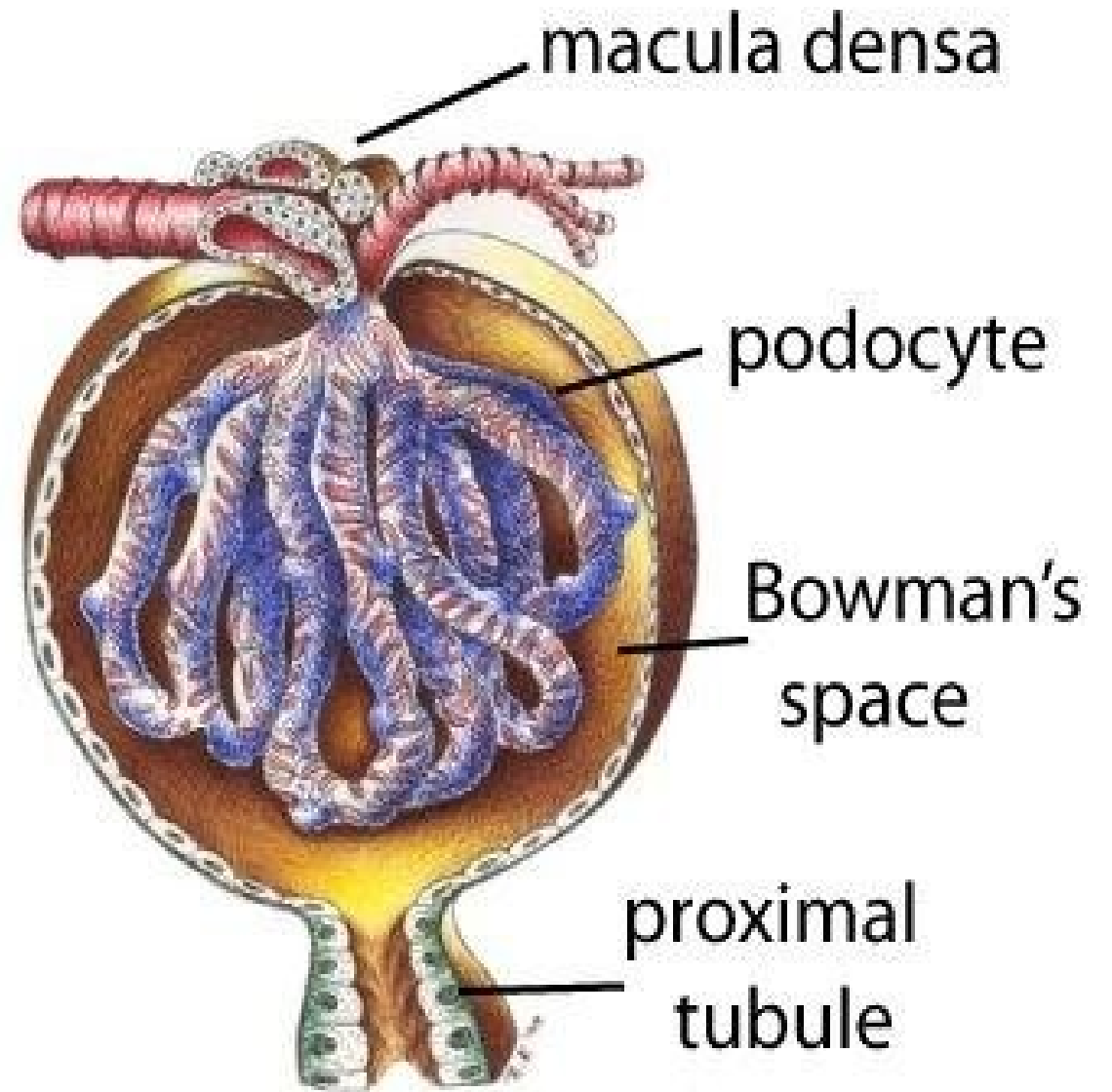
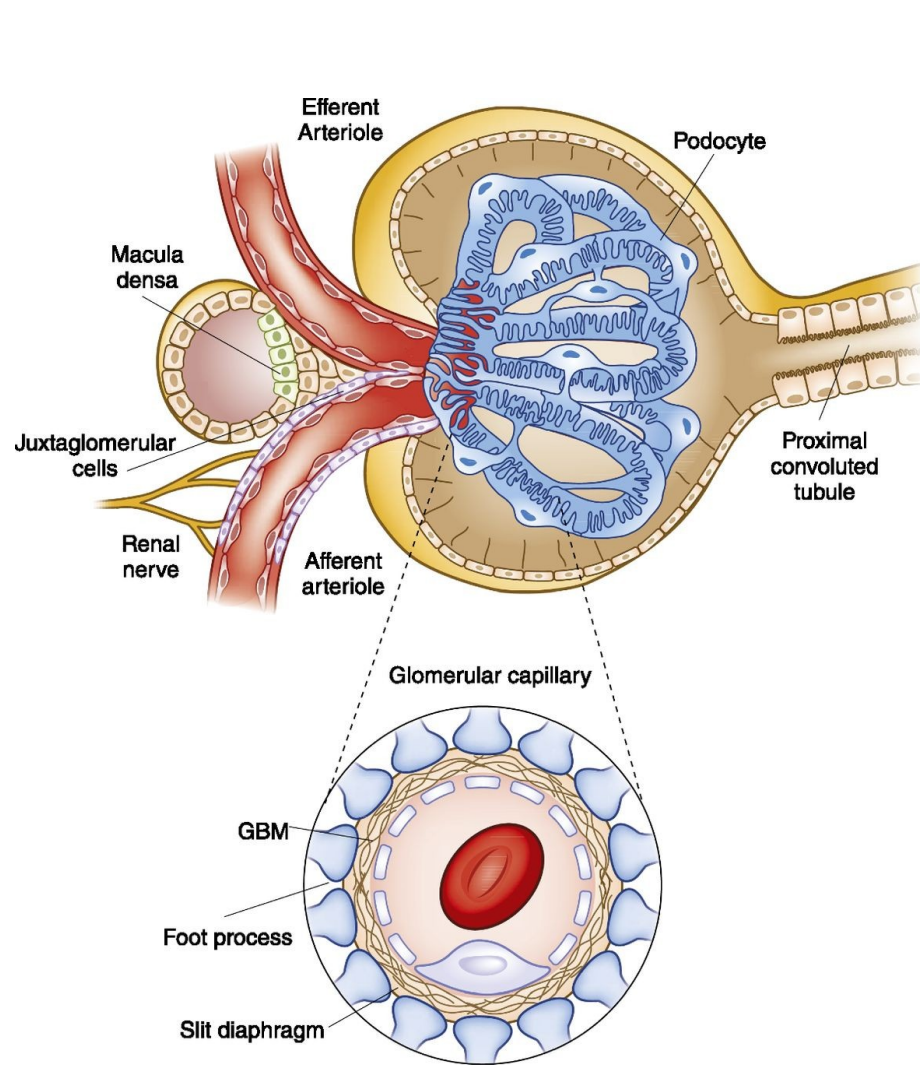
A FORCES AFFECTING ULTRAFILTRATION



P_{GC} = Glomerular capillary hydrostatic pressure
 π_{BS} = Bowman's space oncotic pressure
 P_{BS} = Bowman's space hydrostatic pressure
 π_{GC} = Glomerular capillary oncotic pressure

Parts of the Nephron





<https://cjasn.asnjournals.org/content/clinjasn/9/8/1461.1.1011ge.jpg?width=800&height=600&carousel=1>

Funkce ledvin

- Glomerulární filtrace: primární moč 180 l/d
- Tubulární resorpce: definitivní moč 1,5-2 l/d
- https://youtu.be/9_h0ZXx1IFw

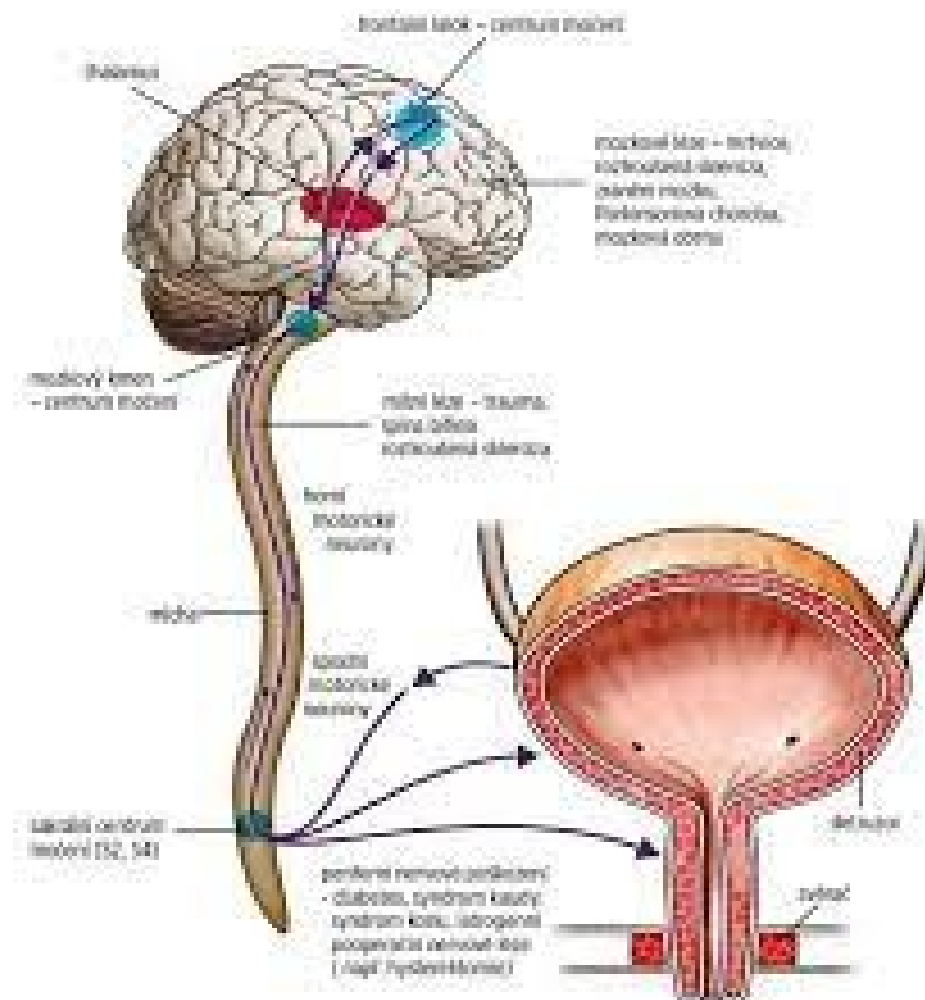
Močový systém

- <https://youtu.be/fQIt5tRYUNE>

Mikce

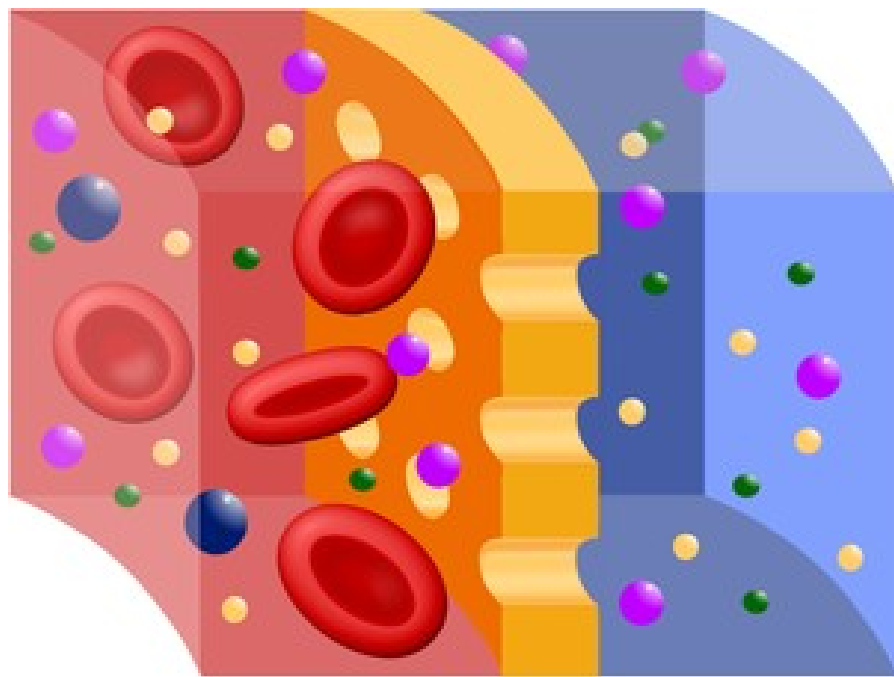
Moč

- <https://youtu.be/US0vNoxsW-k>
- Denní diuréza
- Oligurie
- Anurie
- Polyurie
- Polakisurie
- Dysurie
- Strangurie
- Hematurie
- Voda
- Močovina
- Urobilinogen
- NaCl
- pH 6
- Slámově žlutá

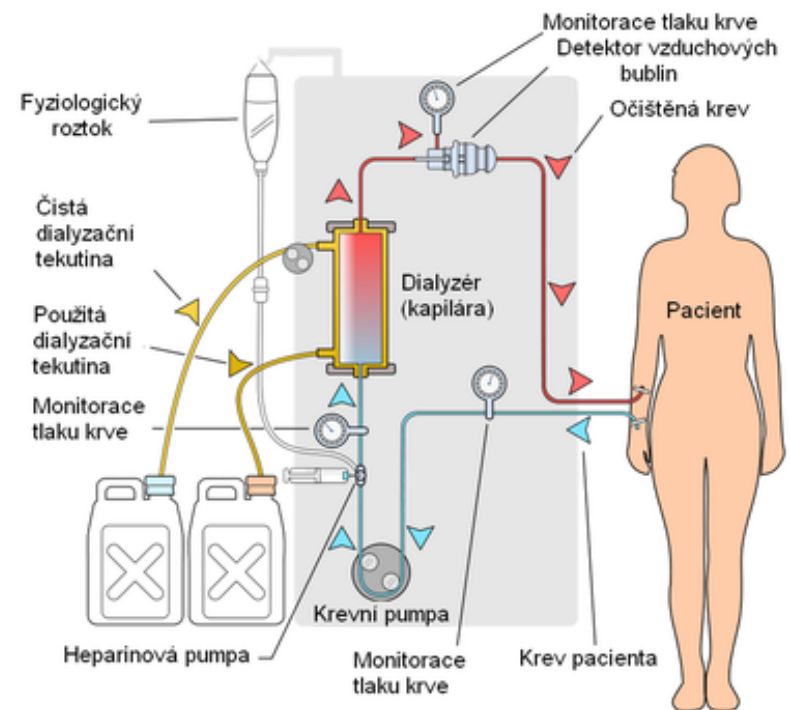


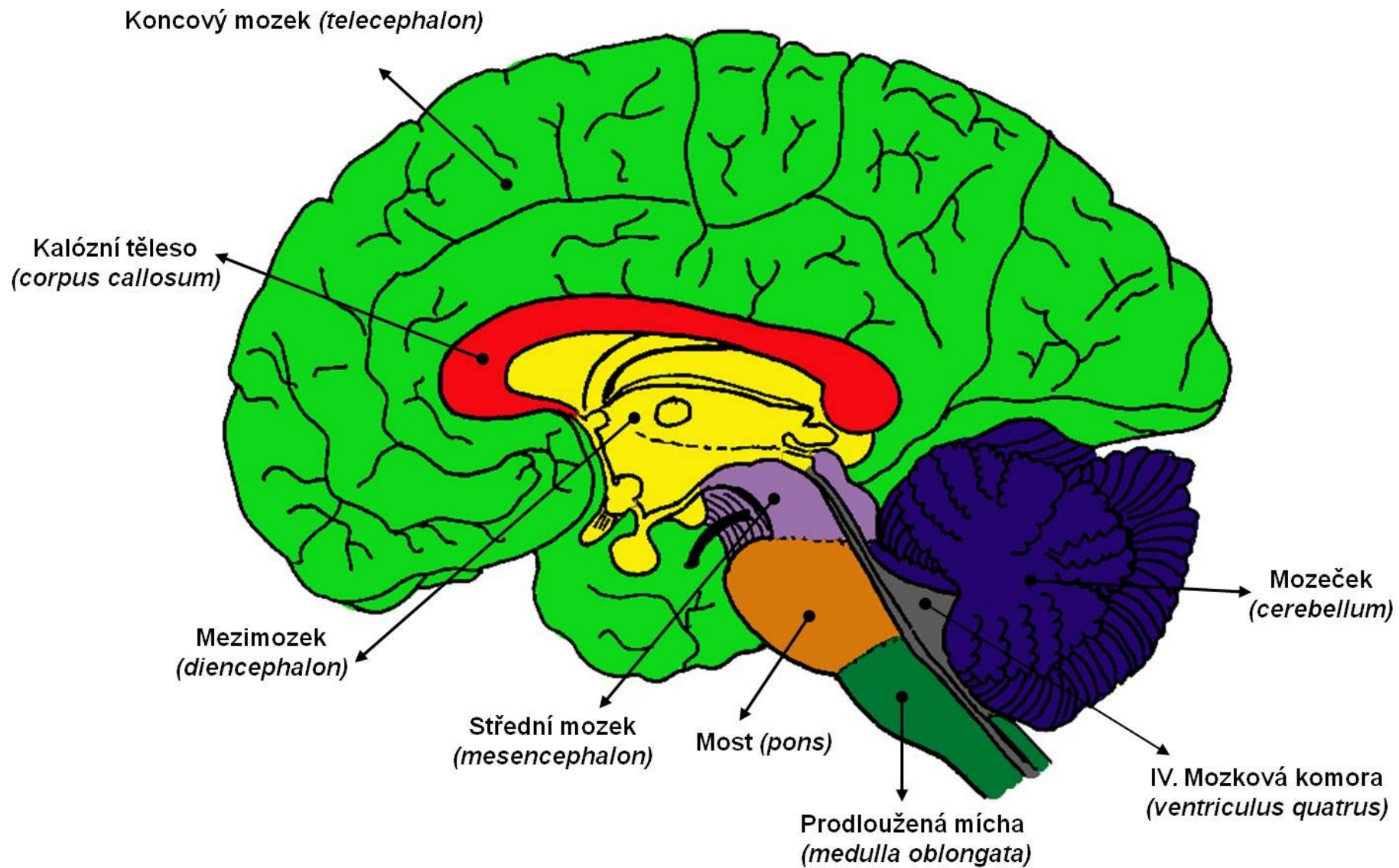
Dialýza

Hemodialýza



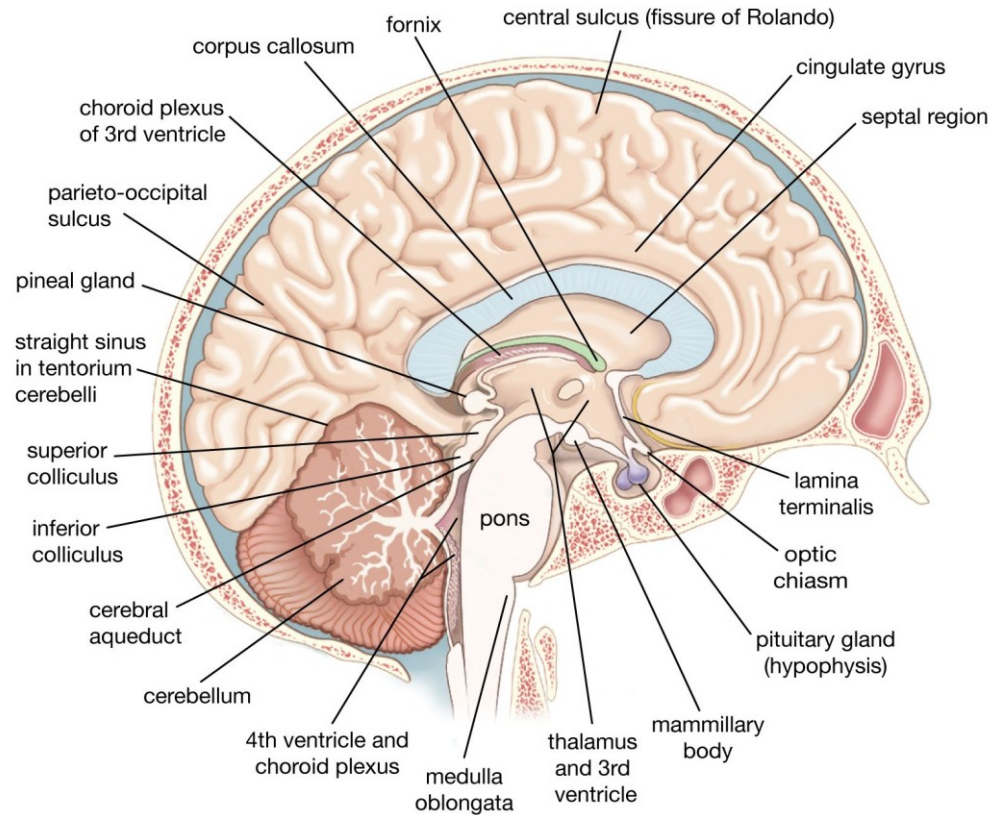
Peritoneální dialýza



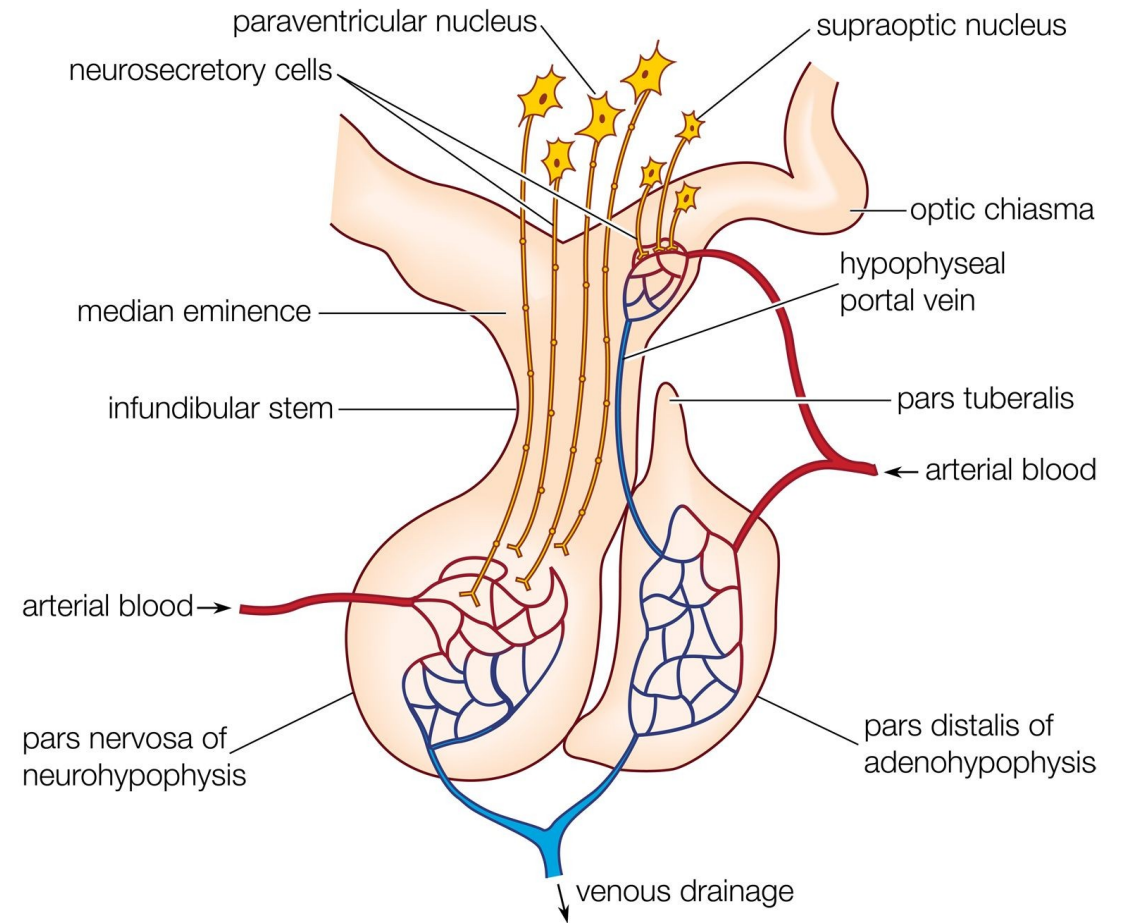


Endokrinní systém

Human brain in cross section



© Encyclopædia Britannica, Inc.



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Hypofýza

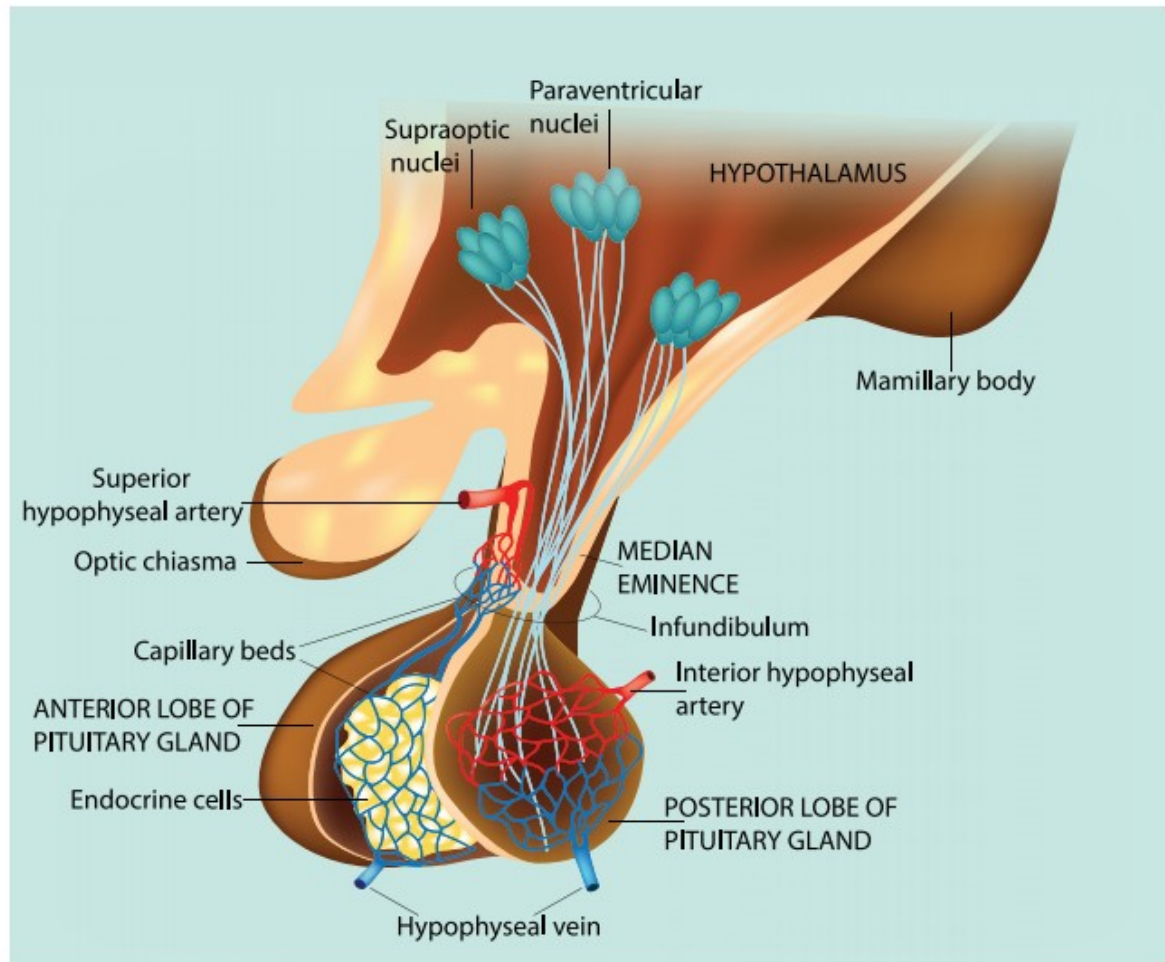
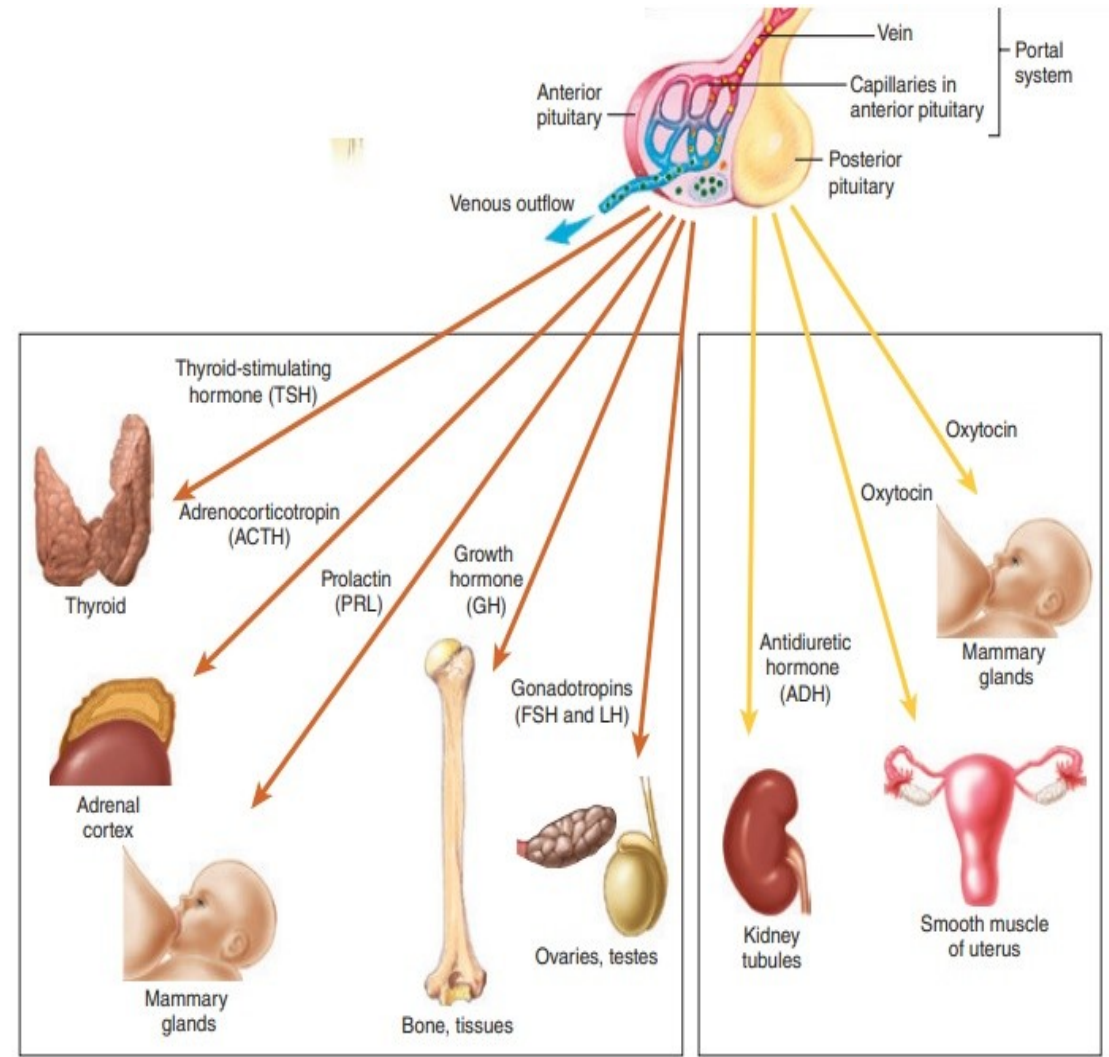
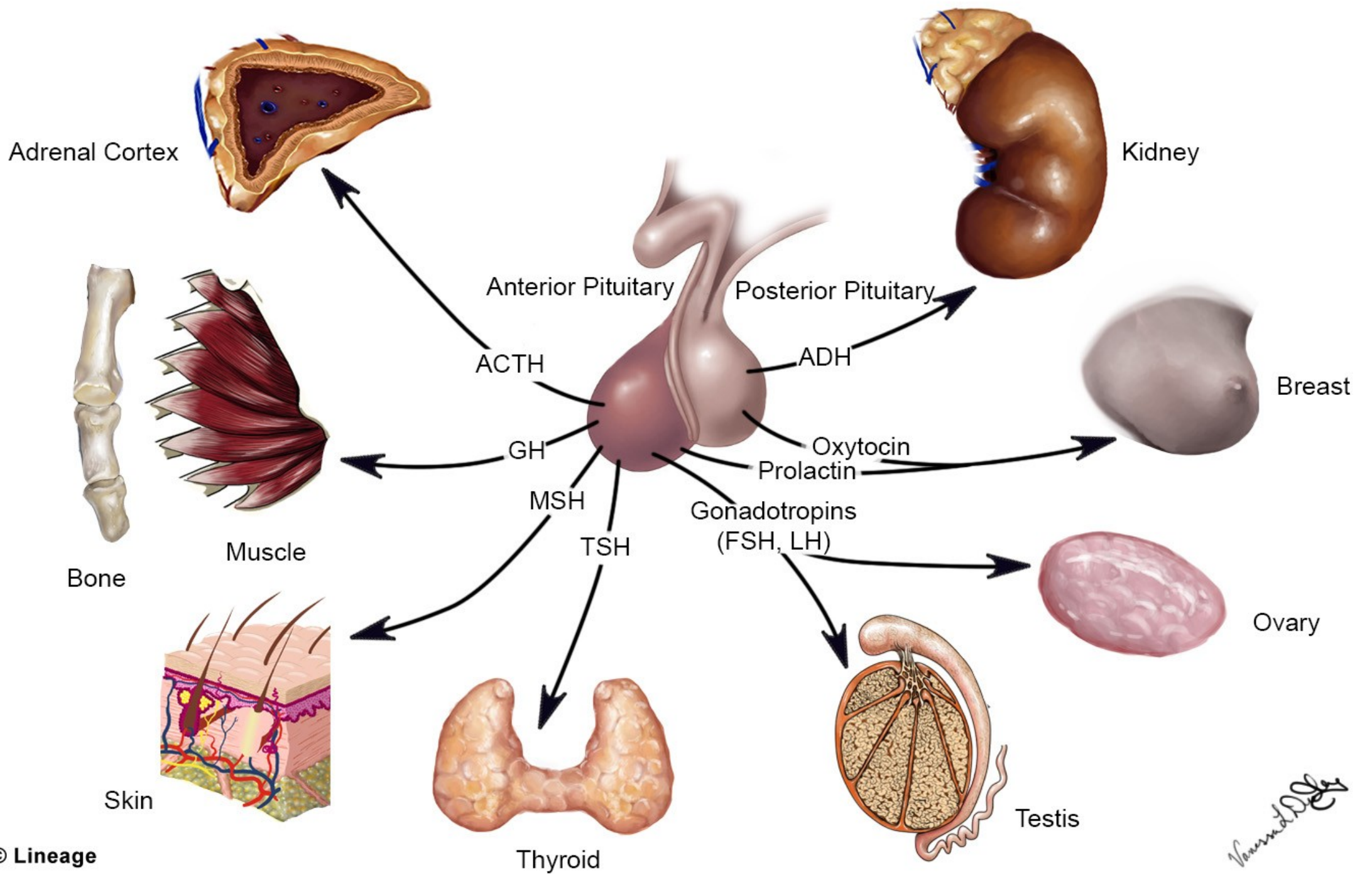


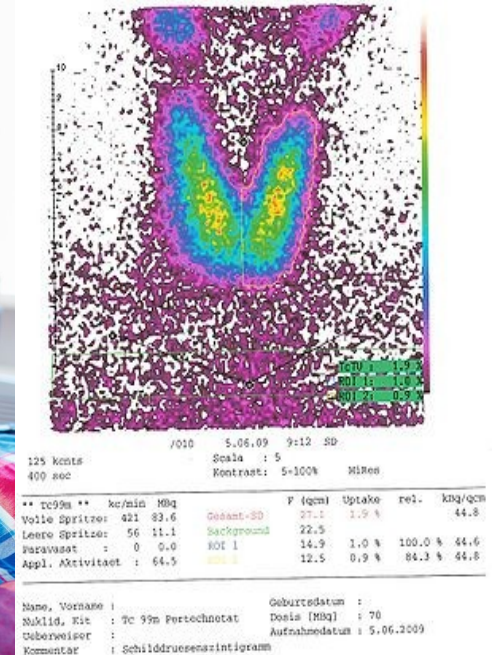
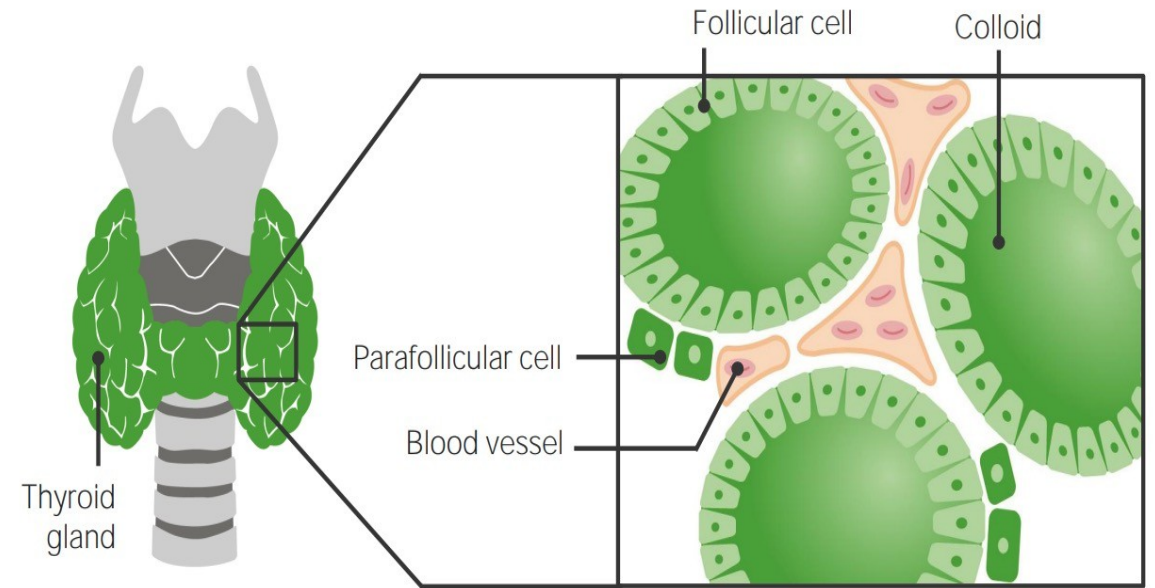
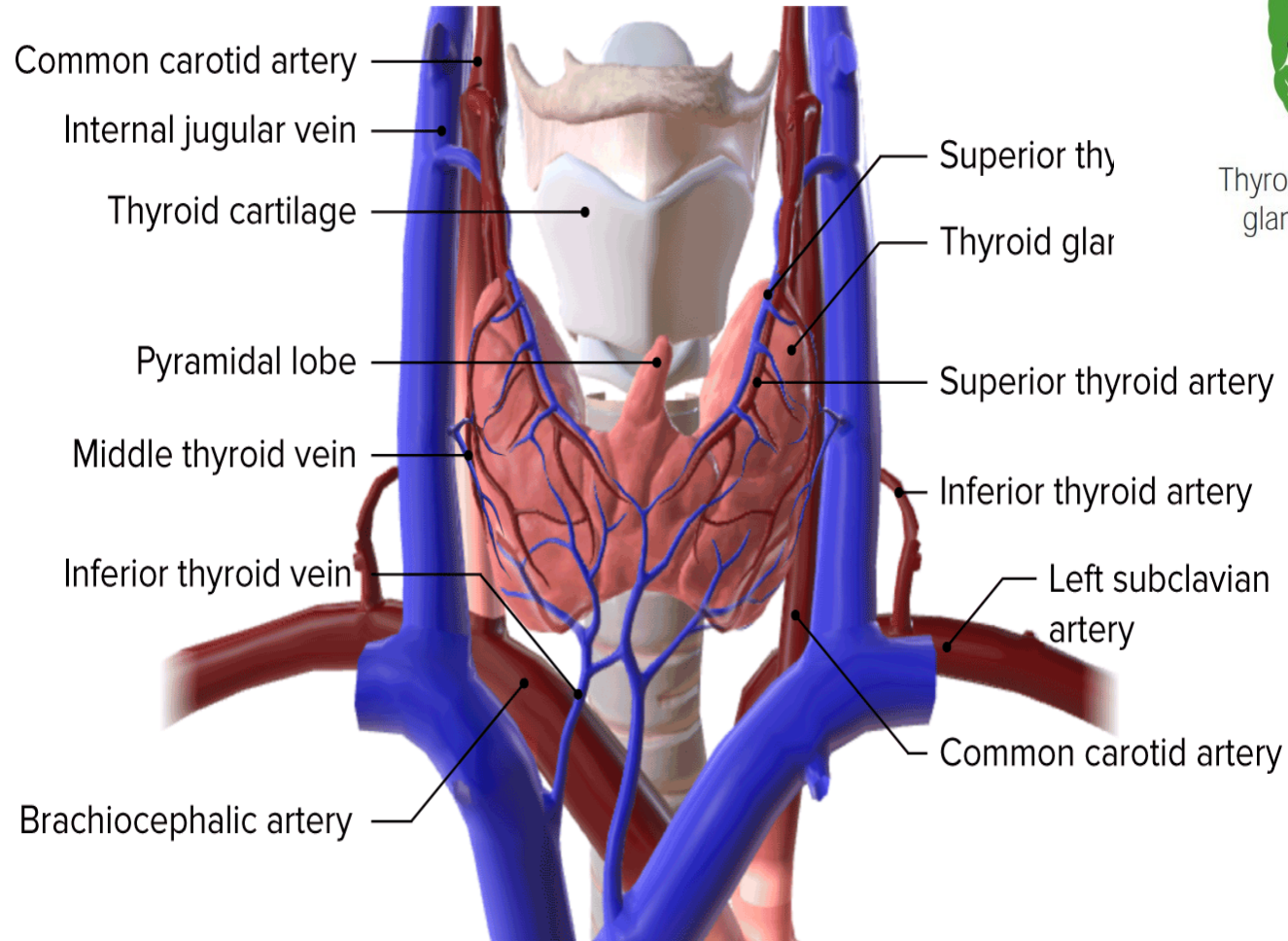
Figure.11. 2 Hypothalamus and pituitary gland



The pituitary gland.



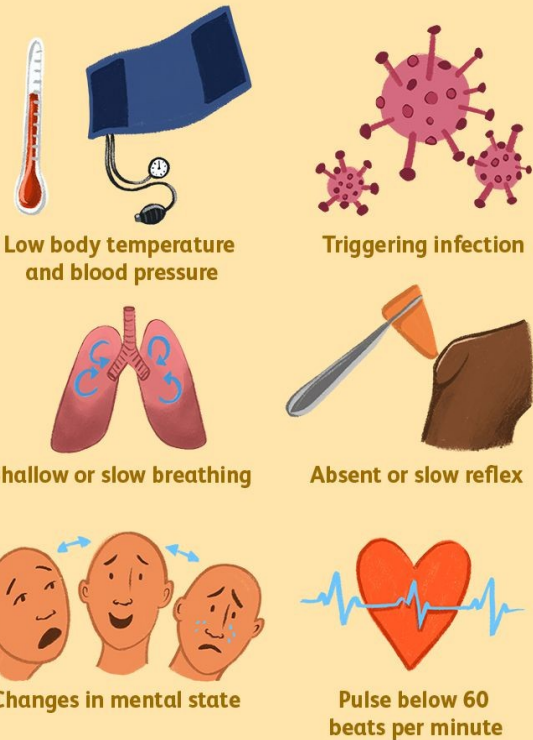
Štítná žláza



Tyreopatie

Kretenismus, Myxedém

Symptoms of Myxedema



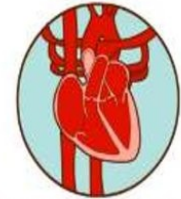
Hypothyroidism symptoms



feeling tired



feeling cold



heart problems



increase in weight



depressed feelings



hair loss



hoarse voice



bowel problems



Tyreopatie

Graves-Basedowova choroba

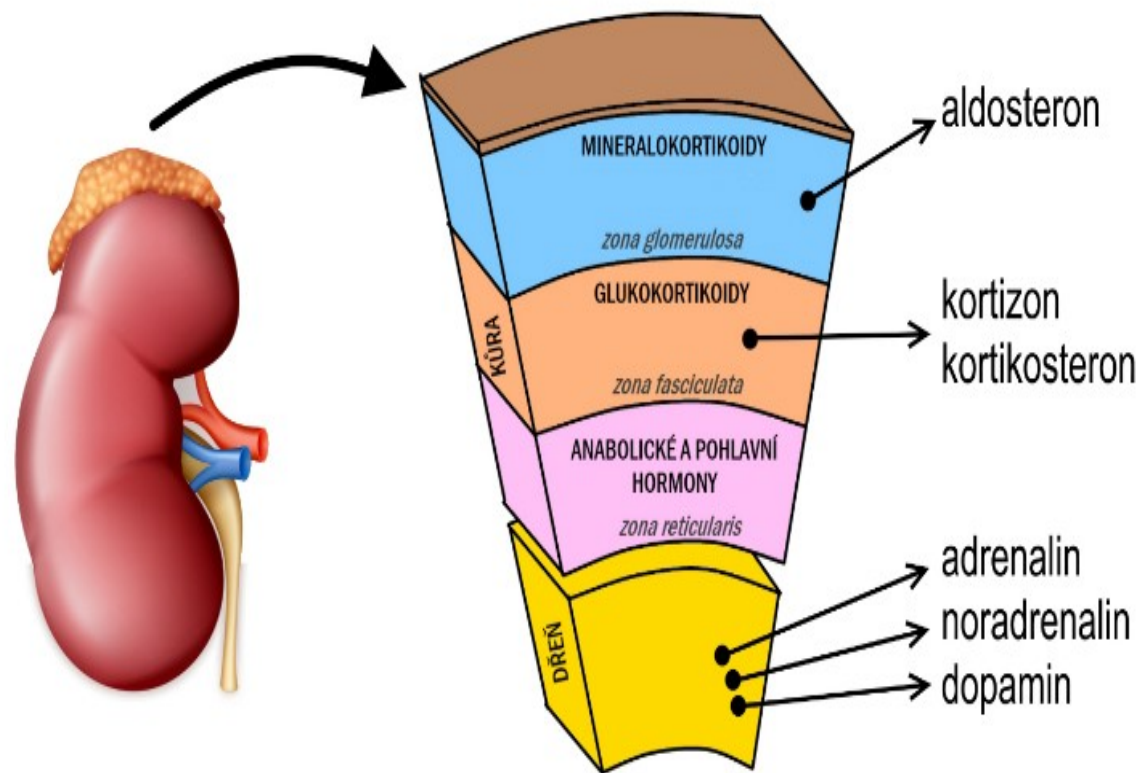
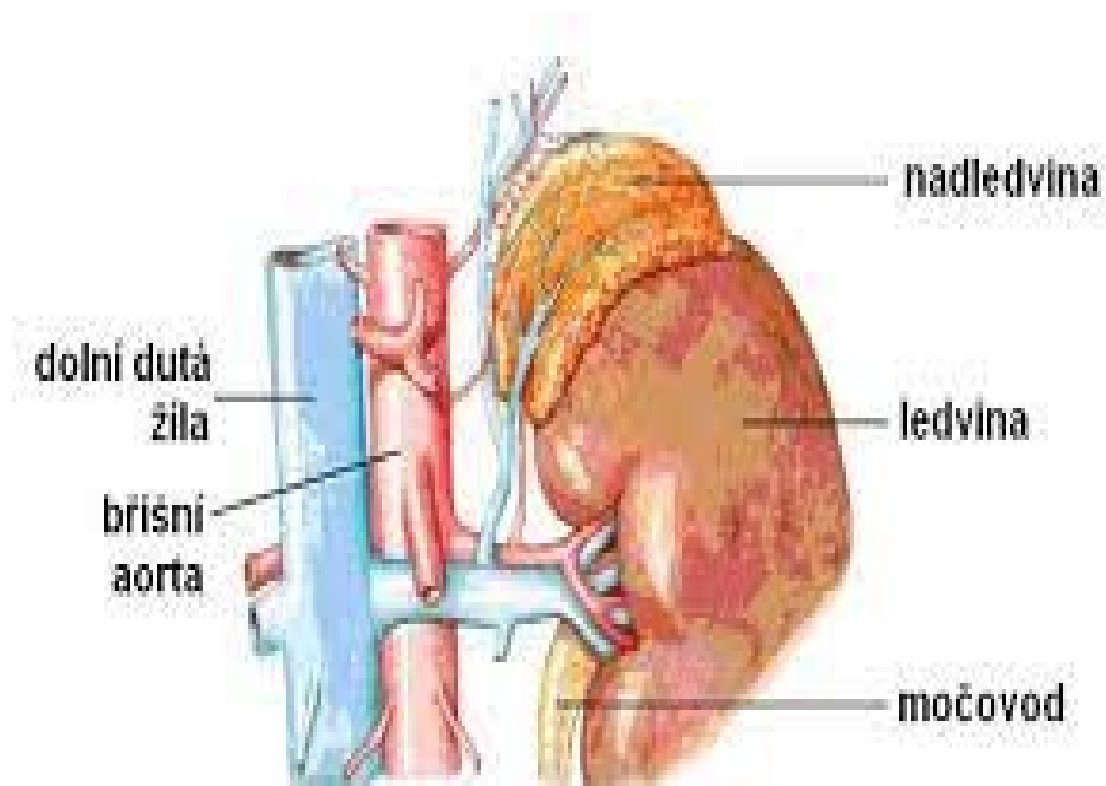


People with Graves' eye disease may develop red, bulging eyes when their eyelids retract and tissues behind the eyeball swell.



PHOTO RESEARCHERS/PHOTO ASSOCIATES

Nadledviny, glandulae suprarenales

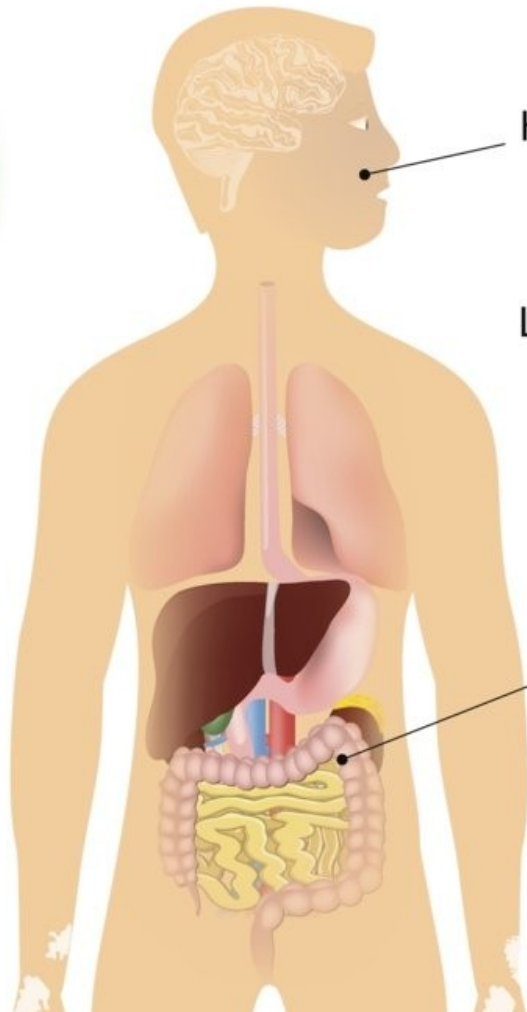


Addisonova choroba, hypokortikalismus

Addison's disease



Adrenal glands
not produce
sufficient steroid
hormones



Skin
Hyperpigmentation

Low blood pressure
Weakness
Weight loss

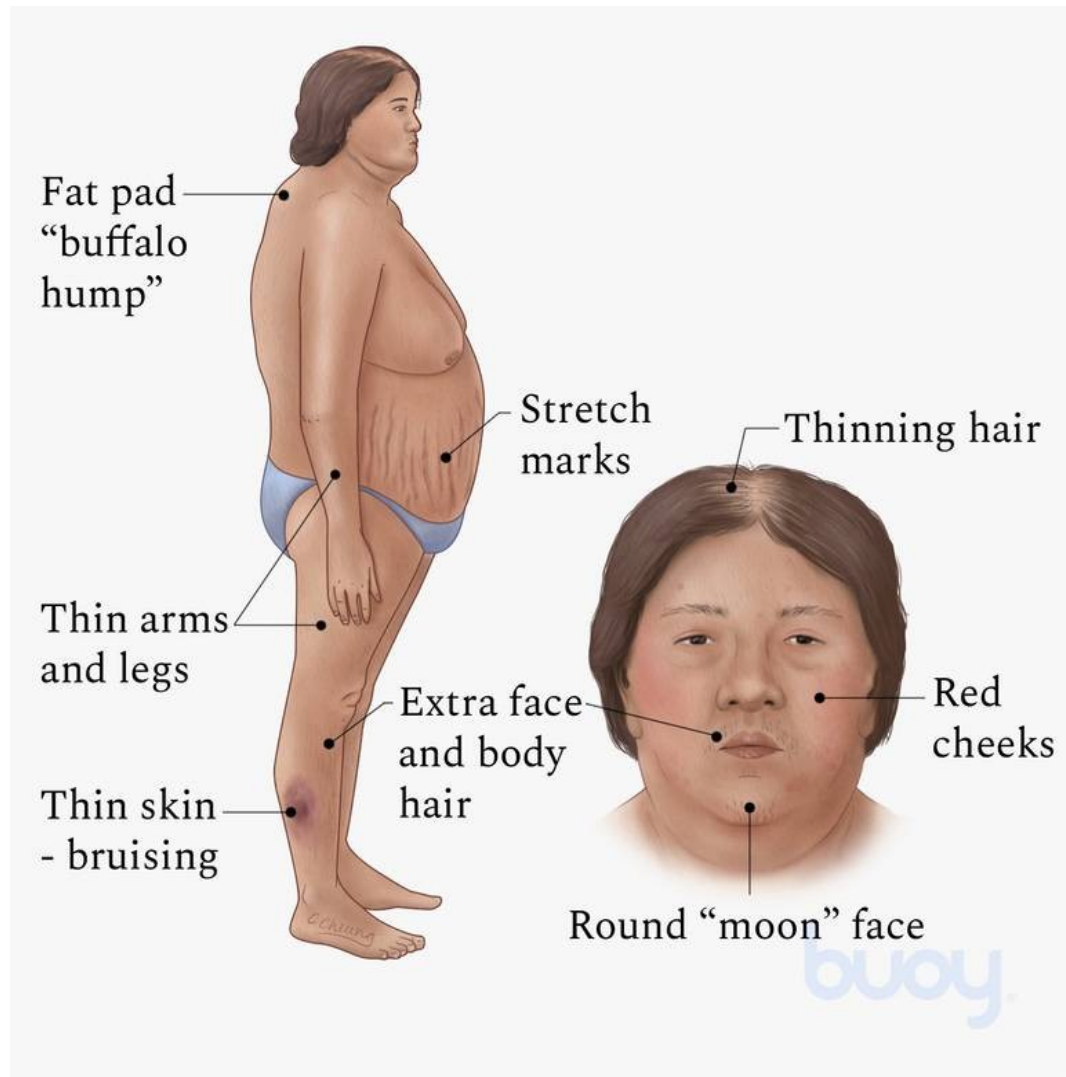
Gastrointestinal
Nausea
Diarrhea
Vomiting
Constipation
Abdominal pain

Adrenal crisis:

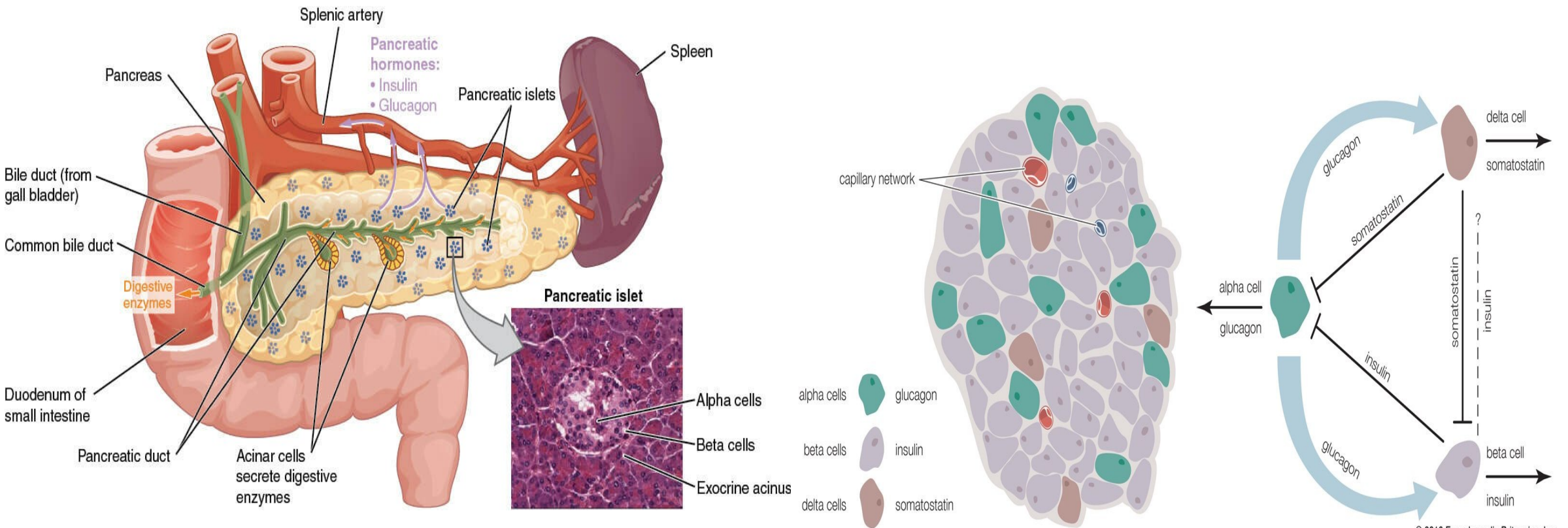
- fever;
- syncope;
- convulsions;
- hypoglycemia;



Cushingova choroba, syndrom, hyperkortikalismus

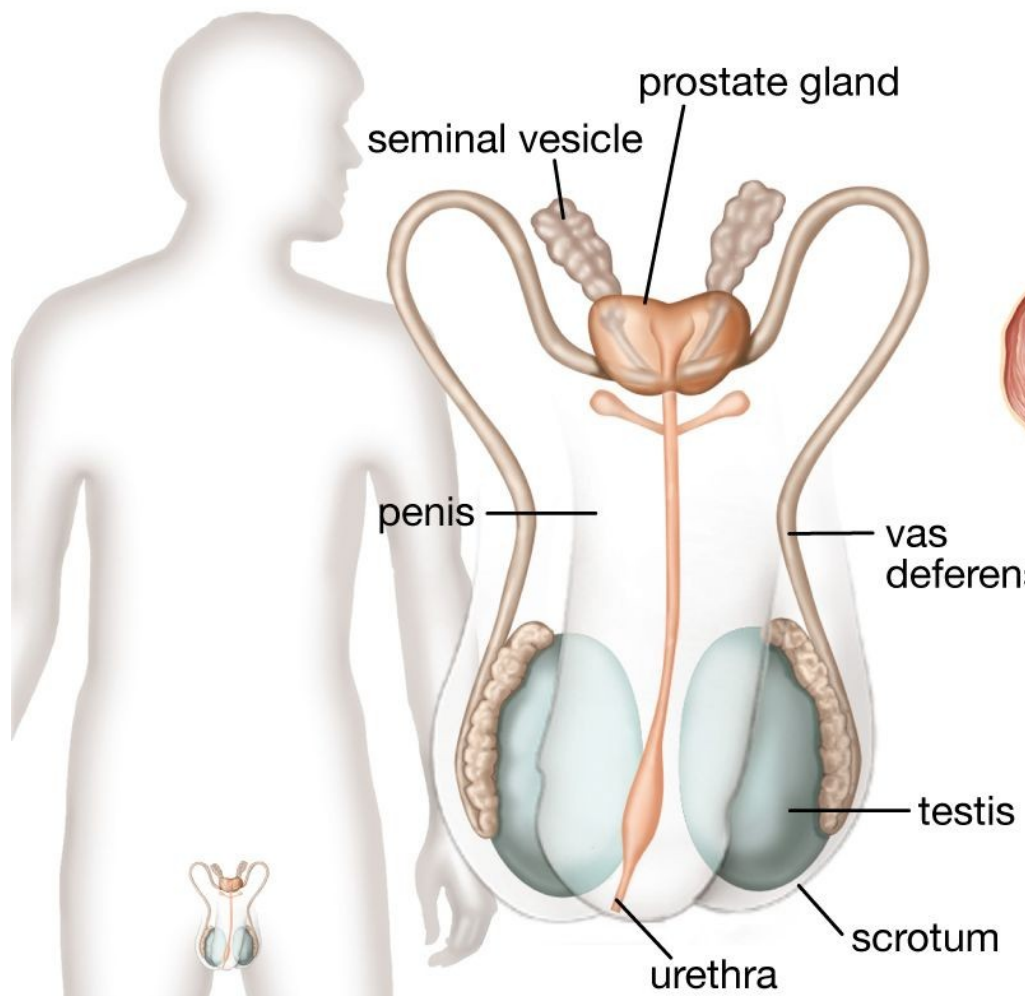


Slinivka břišní, *lat. pancreas*

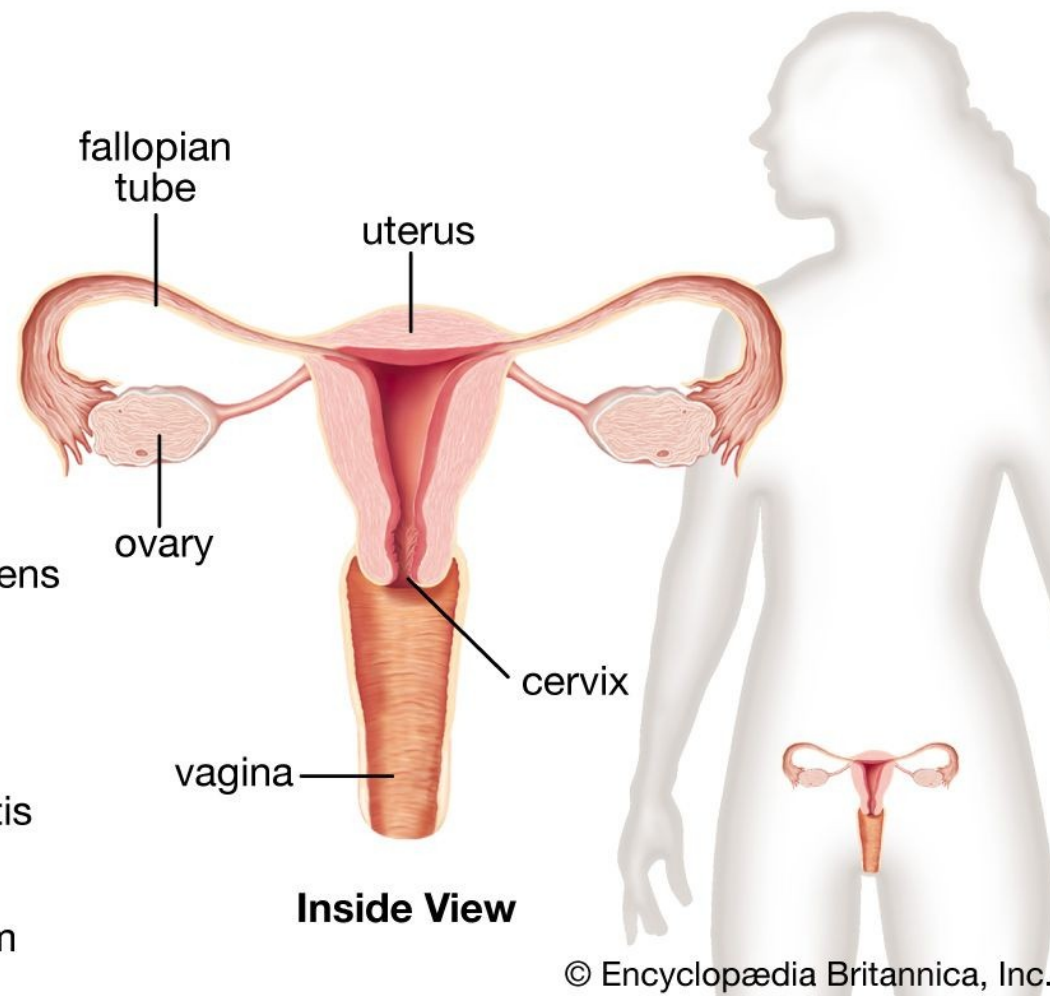


Reprodukční systém

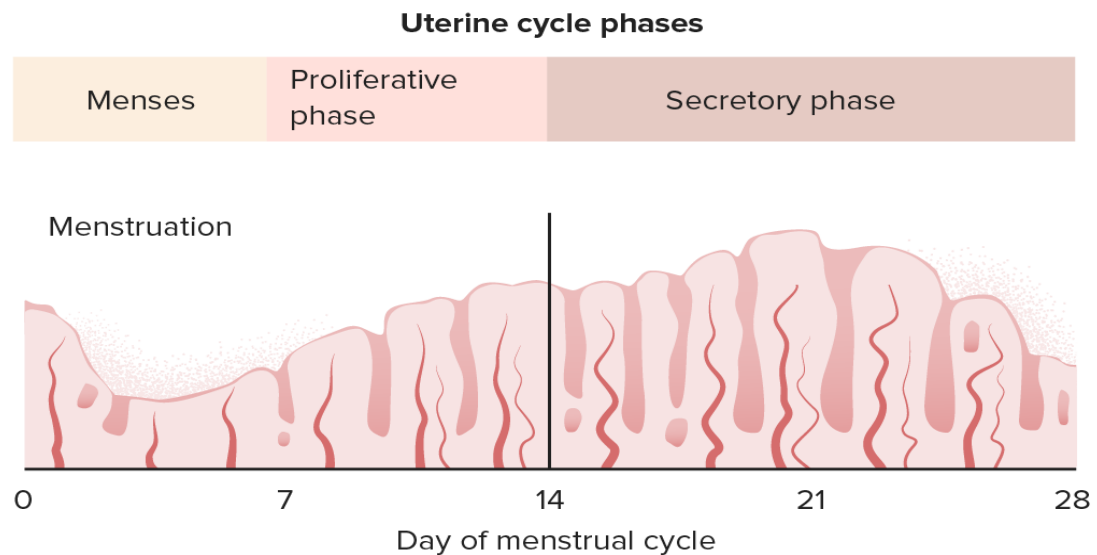
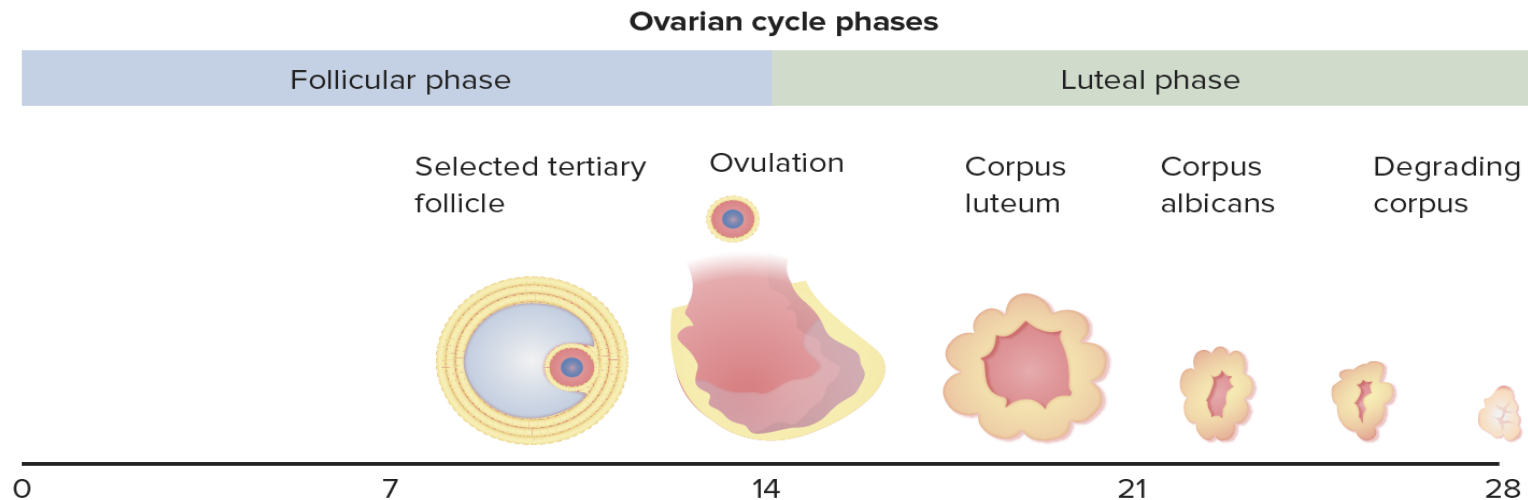
Male Reproductive System



Female Reproductive System



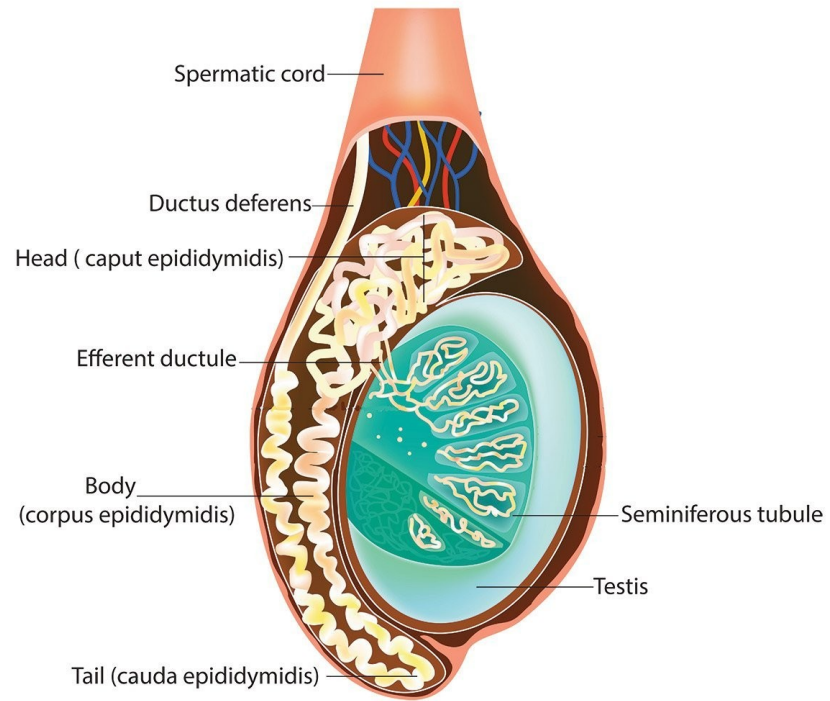
Vaječníky, lat. ovaria



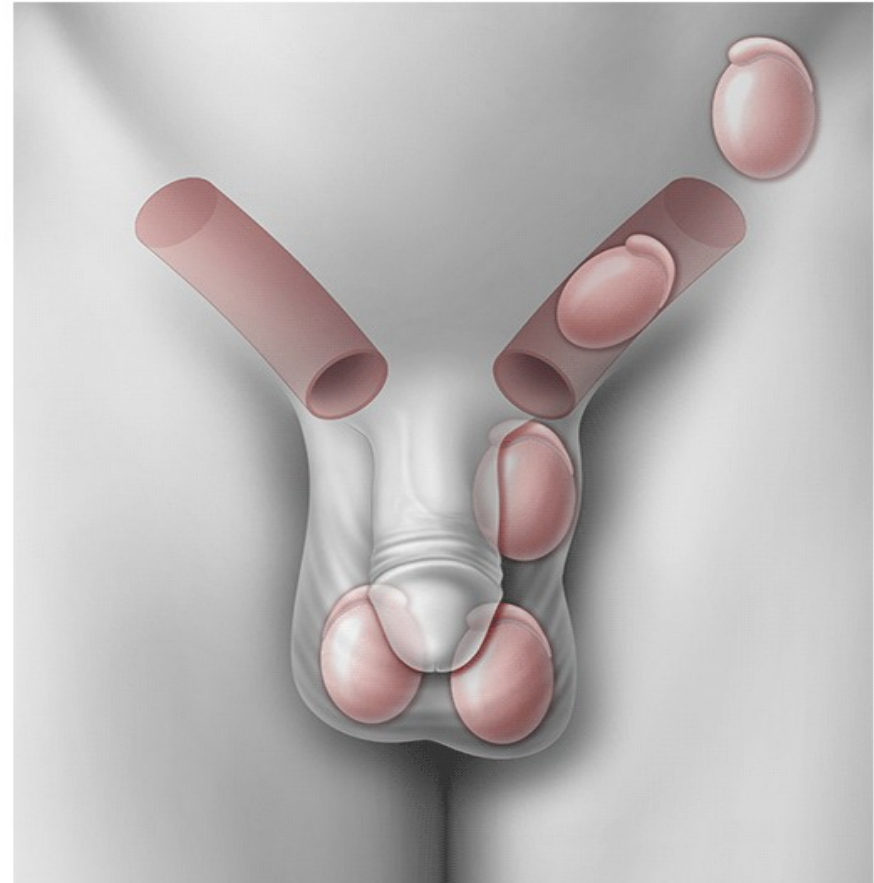
Oplození

- https://youtu.be/_5OvgQW6FG4
- <https://youtu.be/y4HK5CTVkJXM?si=YziWLXiRyo959pkL>
- https://youtu.be/Qn80_xv40ug
- <https://youtu.be/8312a32dcQc>
- https://youtu.be/usxM_dhEK6M
- <https://youtu.be/WH9ZJu4wRUE>
- <https://youtu.be/dYu-0rOnLpA>

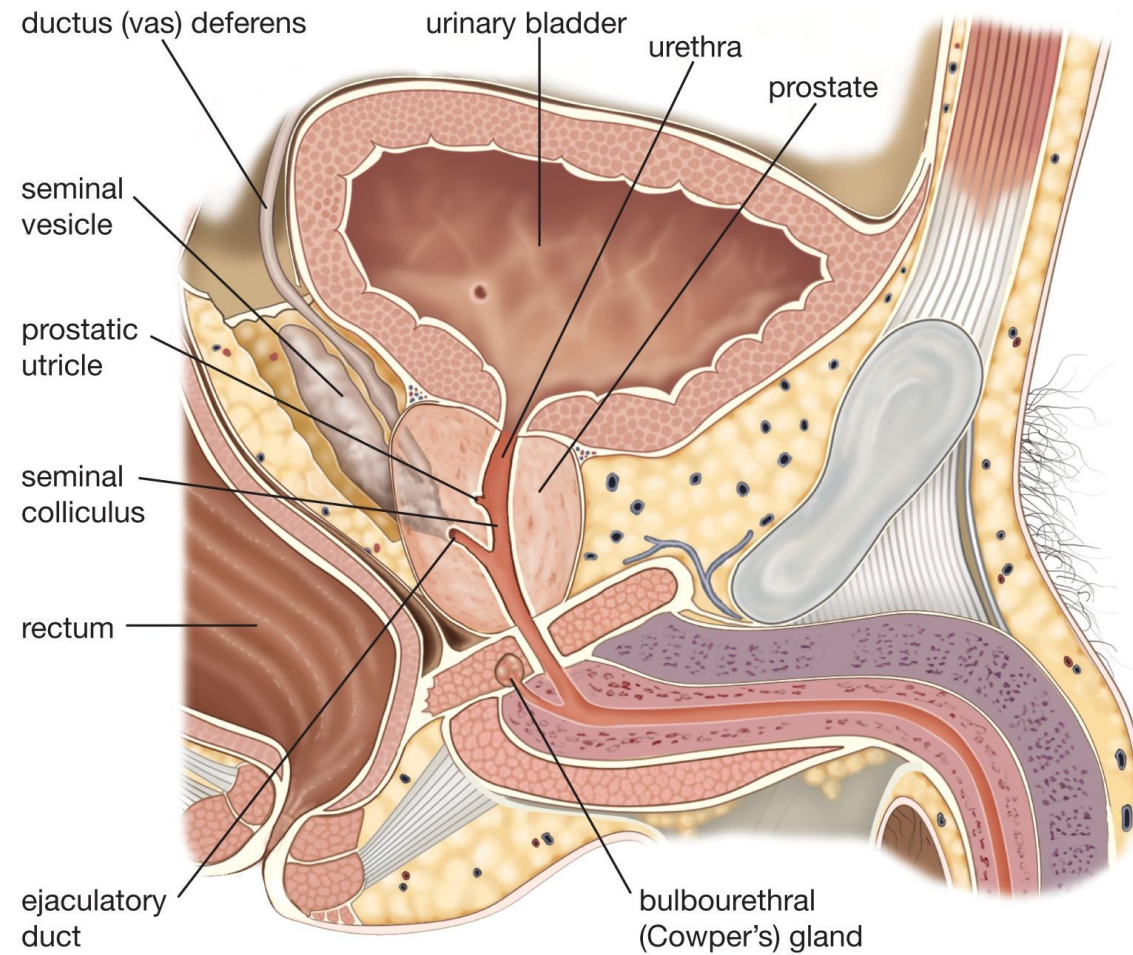
Varlata, lat. testes



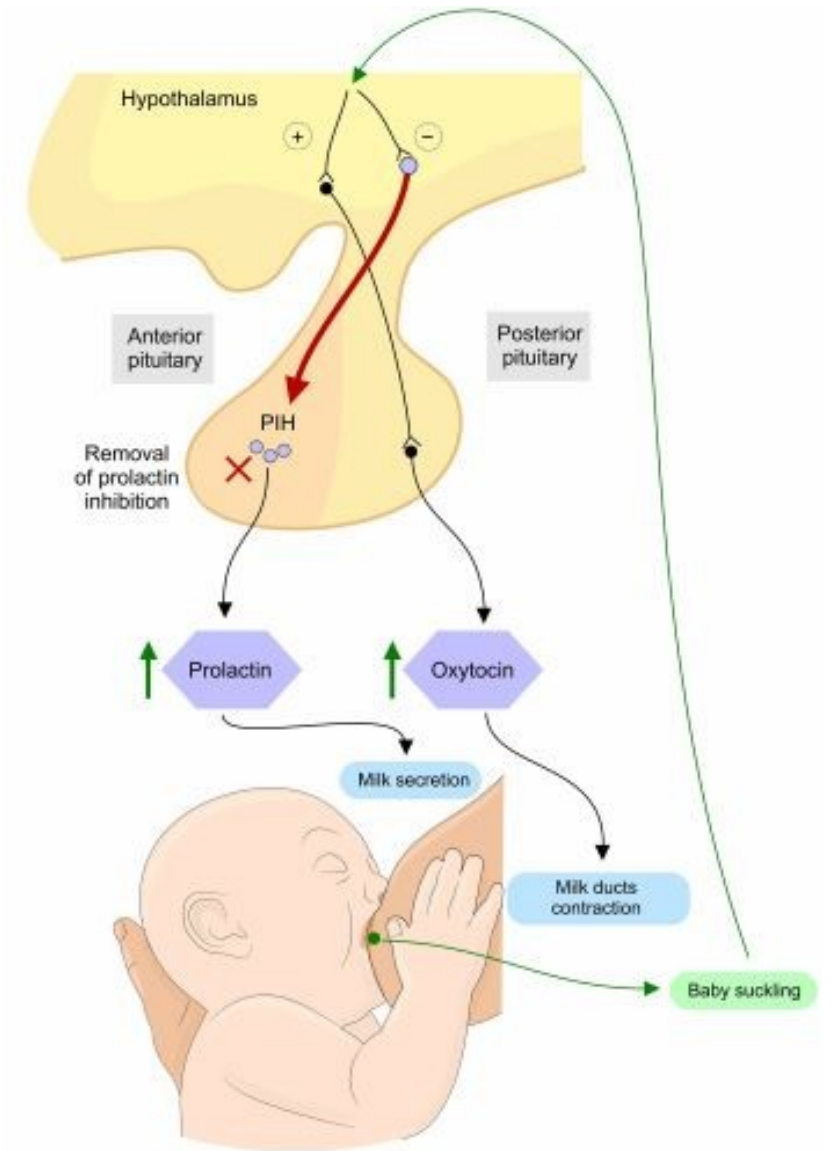
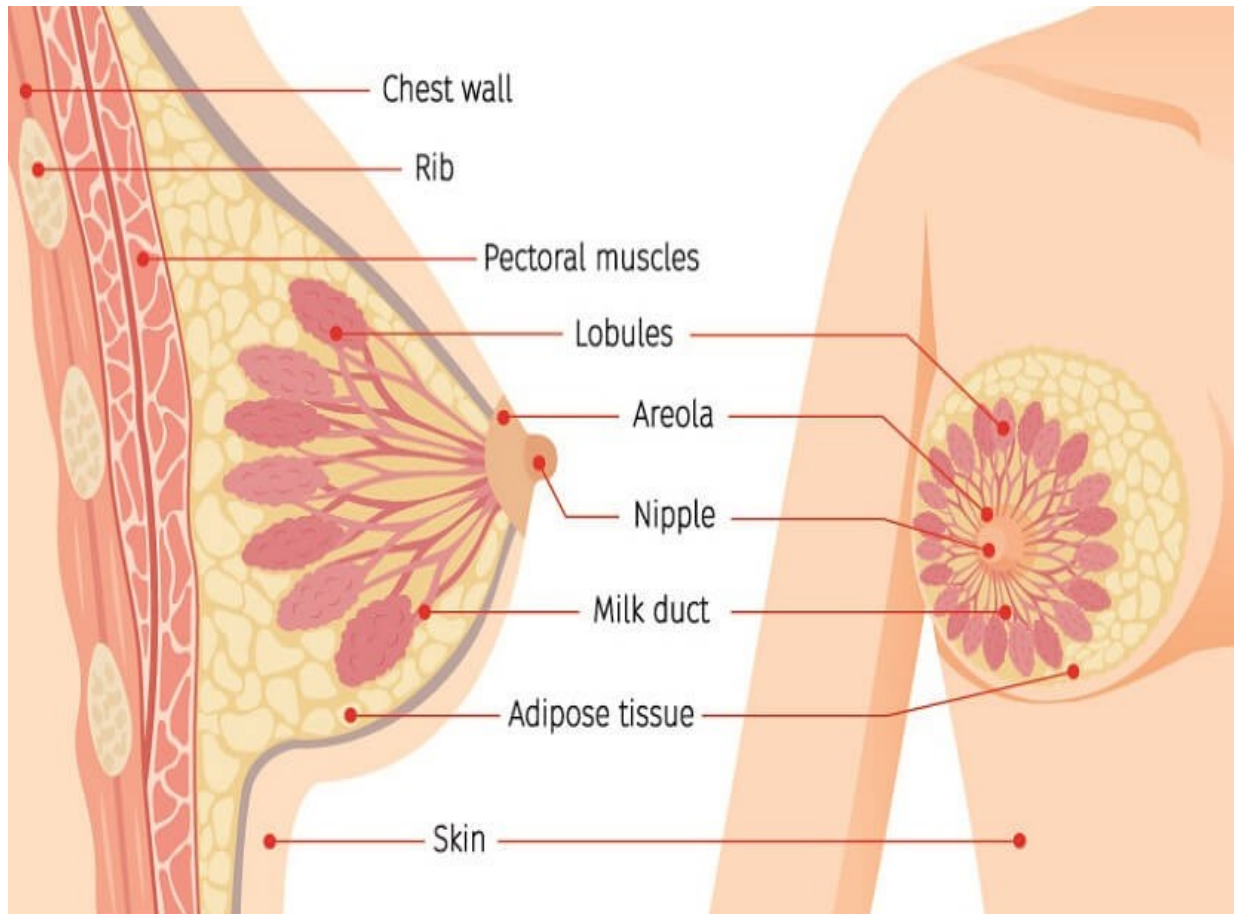
Undescended Testes



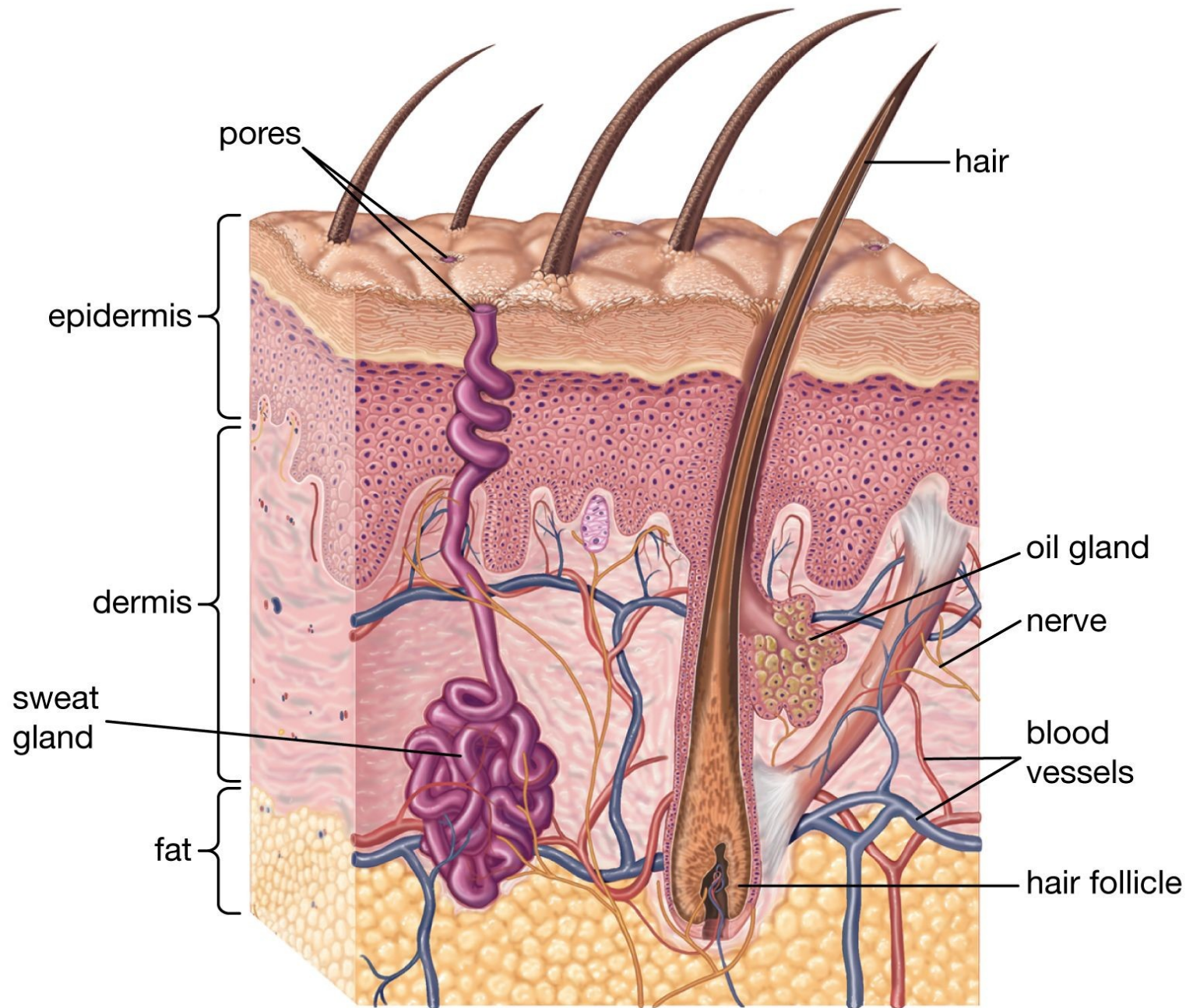
Prostata



Mléčná žláza, laktace

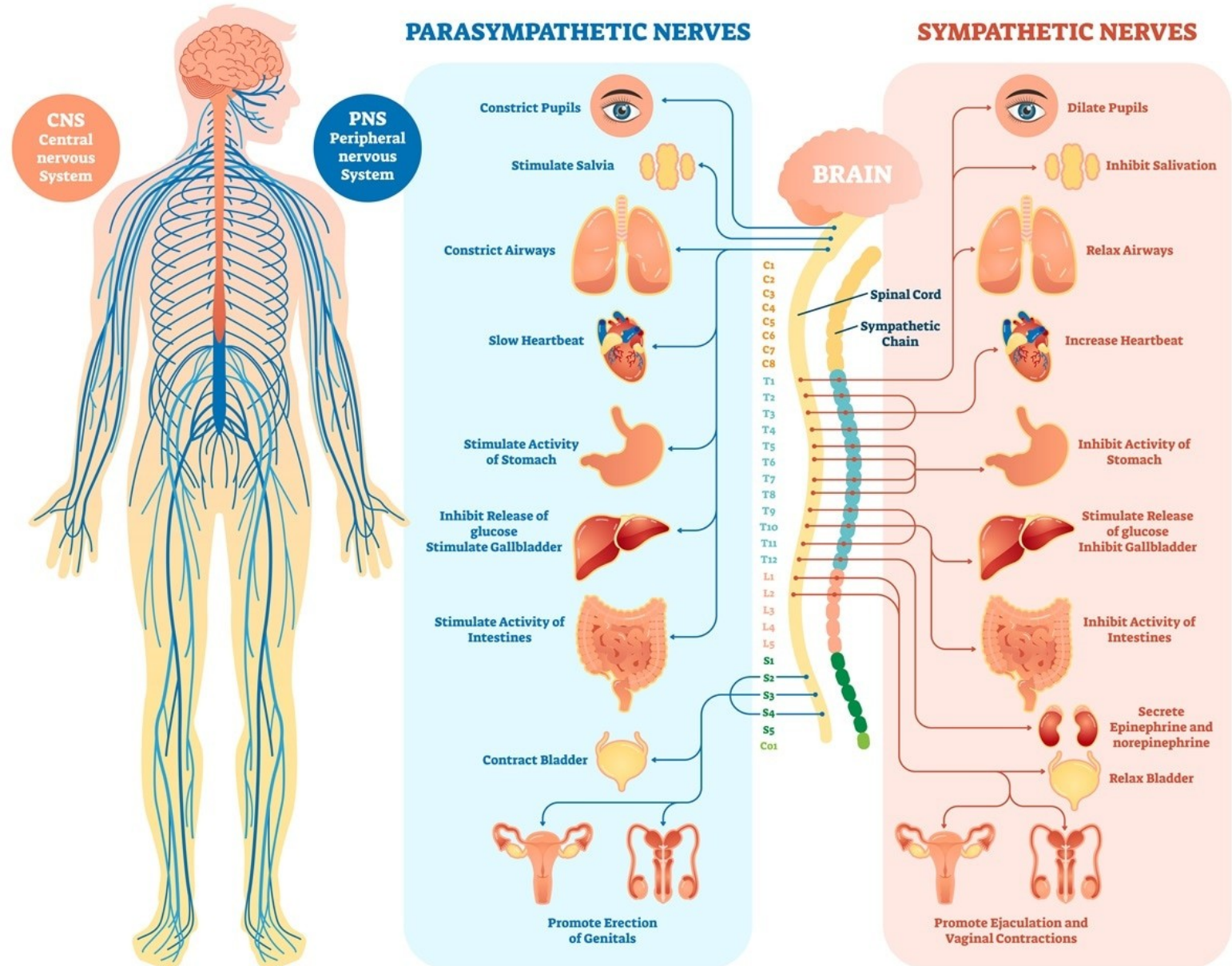


Kůže, lat. derm

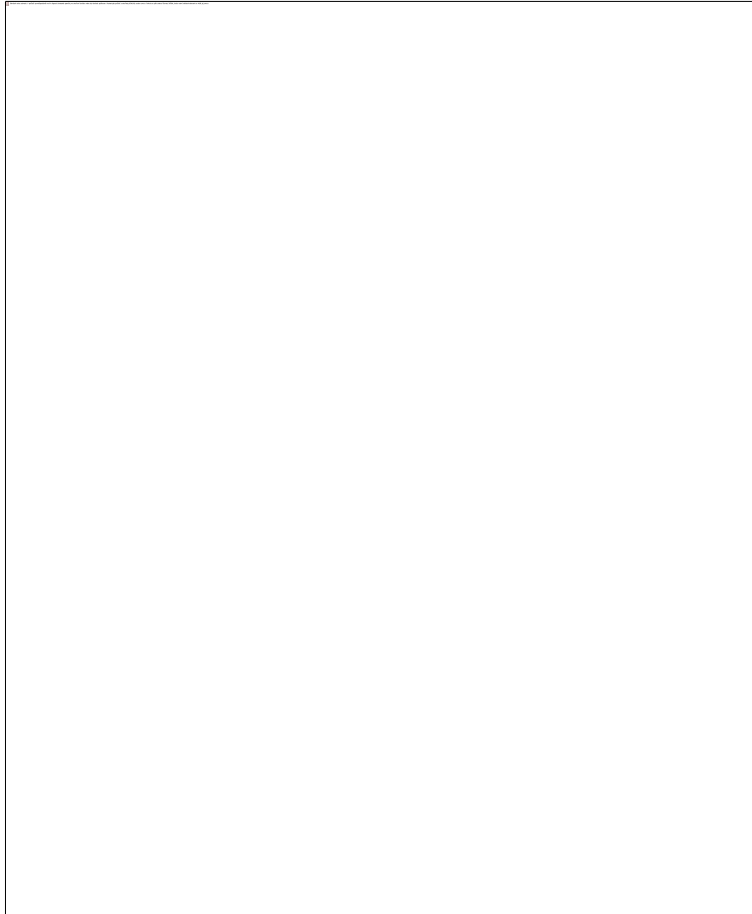


Nervový systém

HUMAN NERVOUS SYSTEM



Mozek, lat. cerebrum



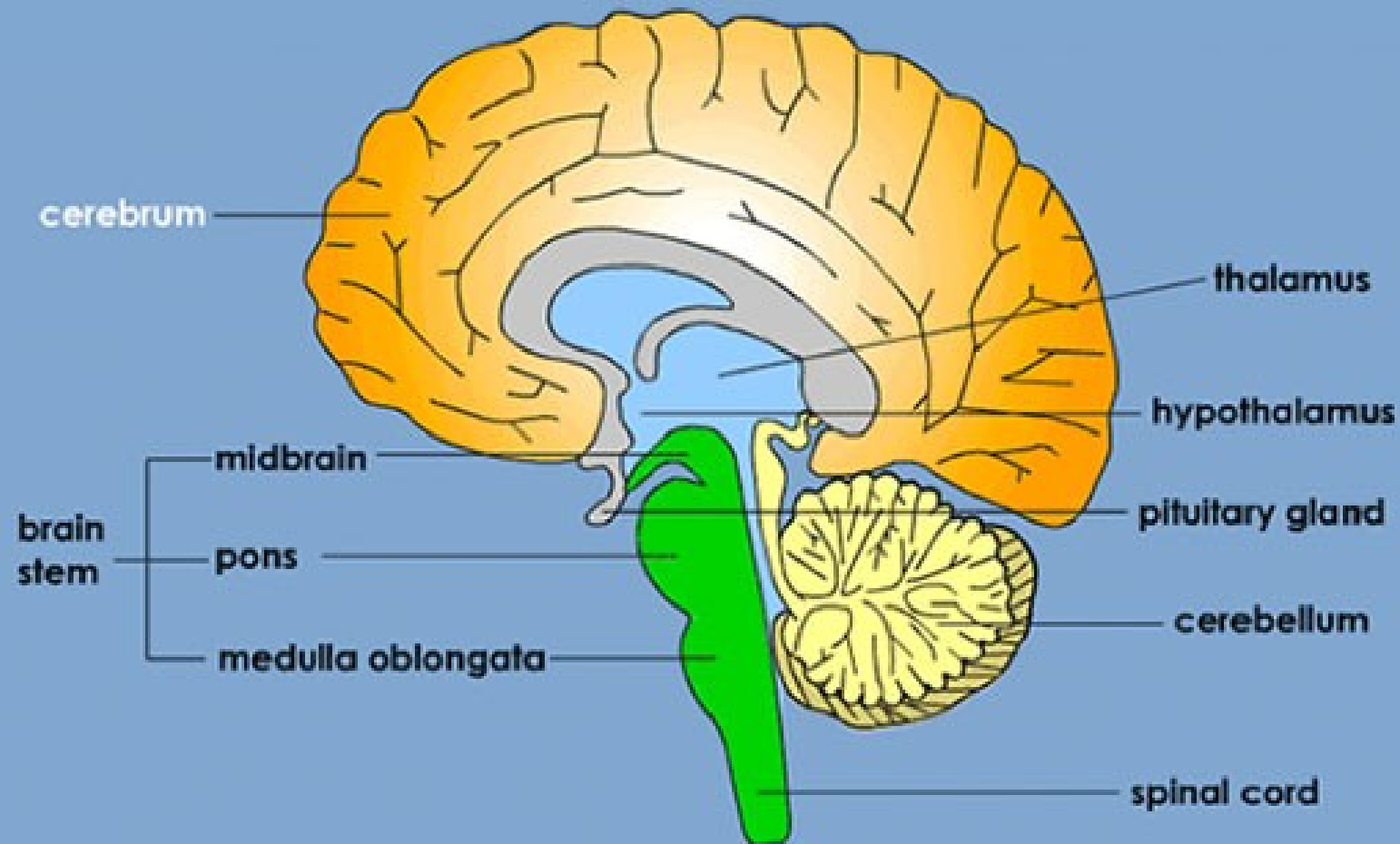
- <https://youtu.be/1-5Dc8w6Cp4>

[Mozek v 7 minutách](#)

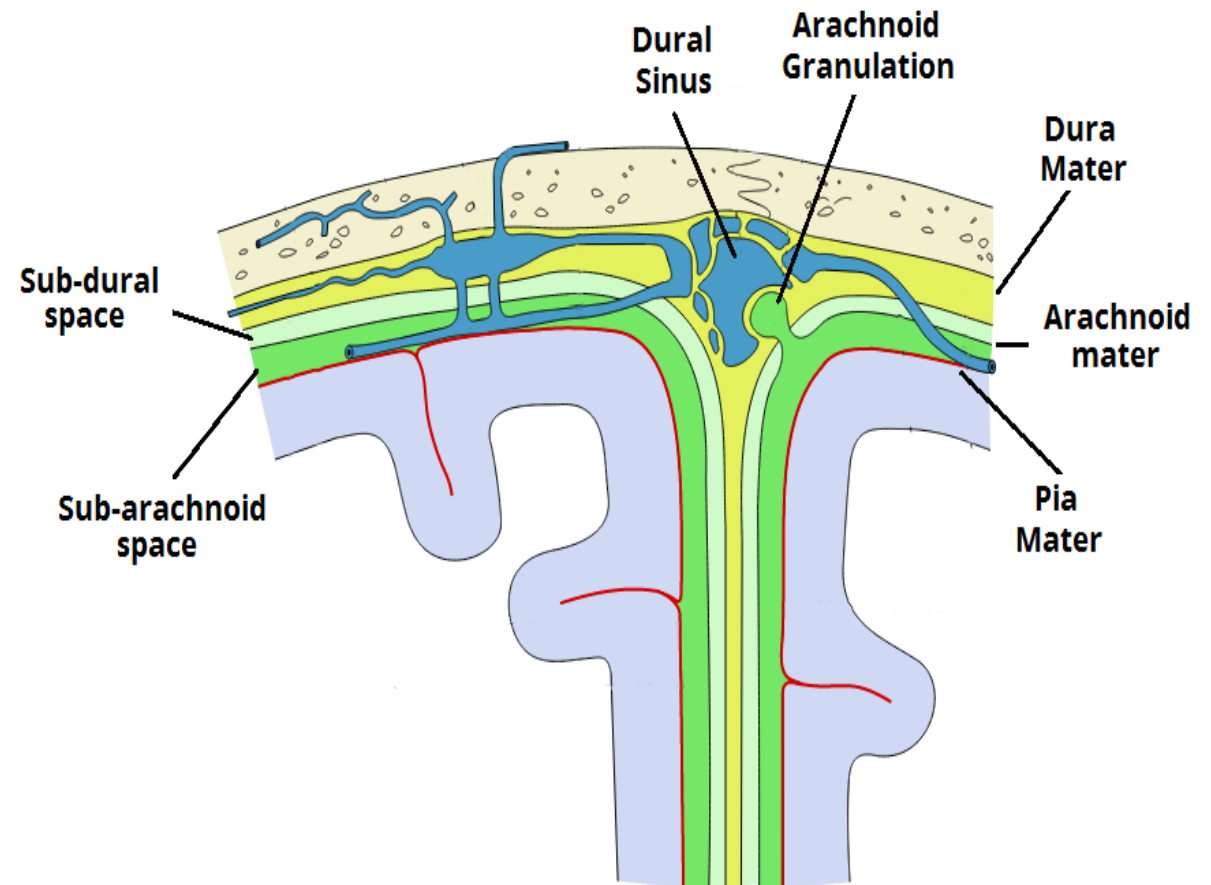
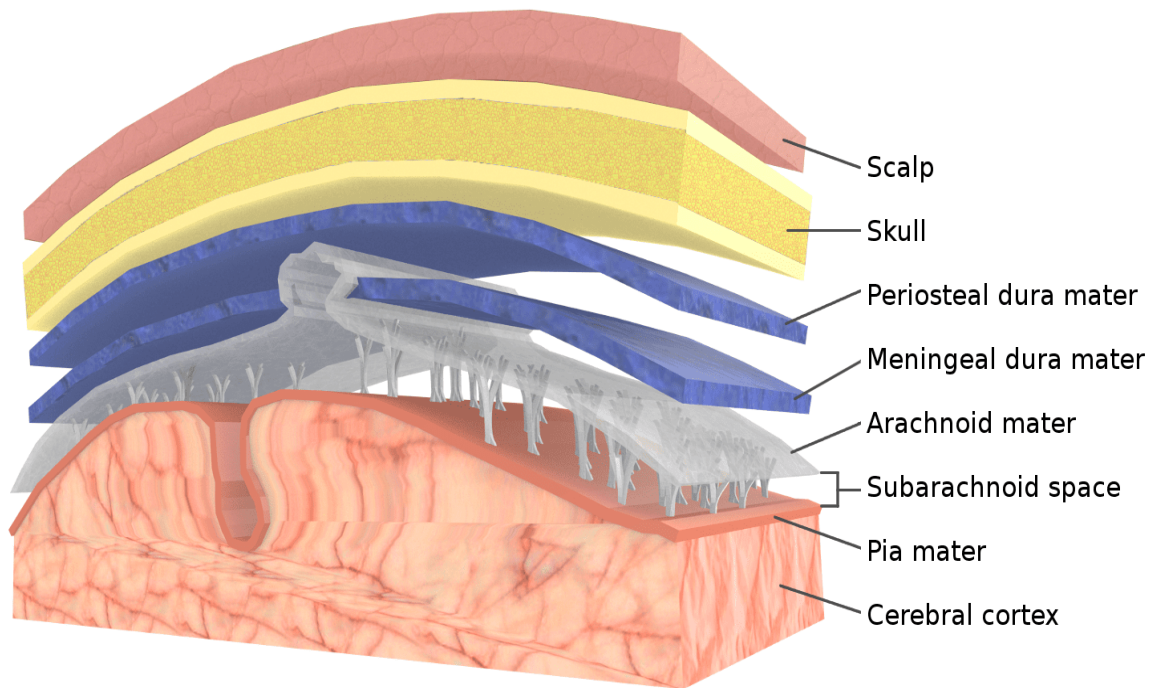
<https://youtu.be/FczvTGluHKM>

The Brain and Nervous System

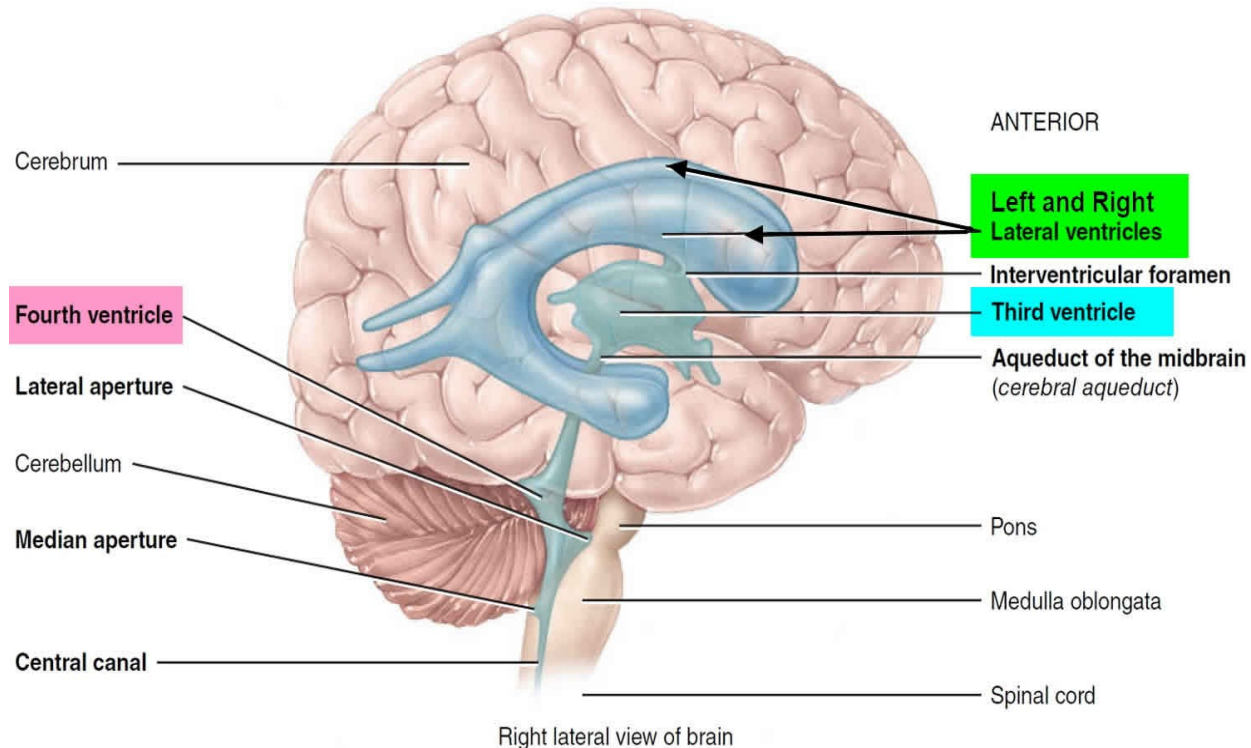
Slideshow



Mozkové obaly



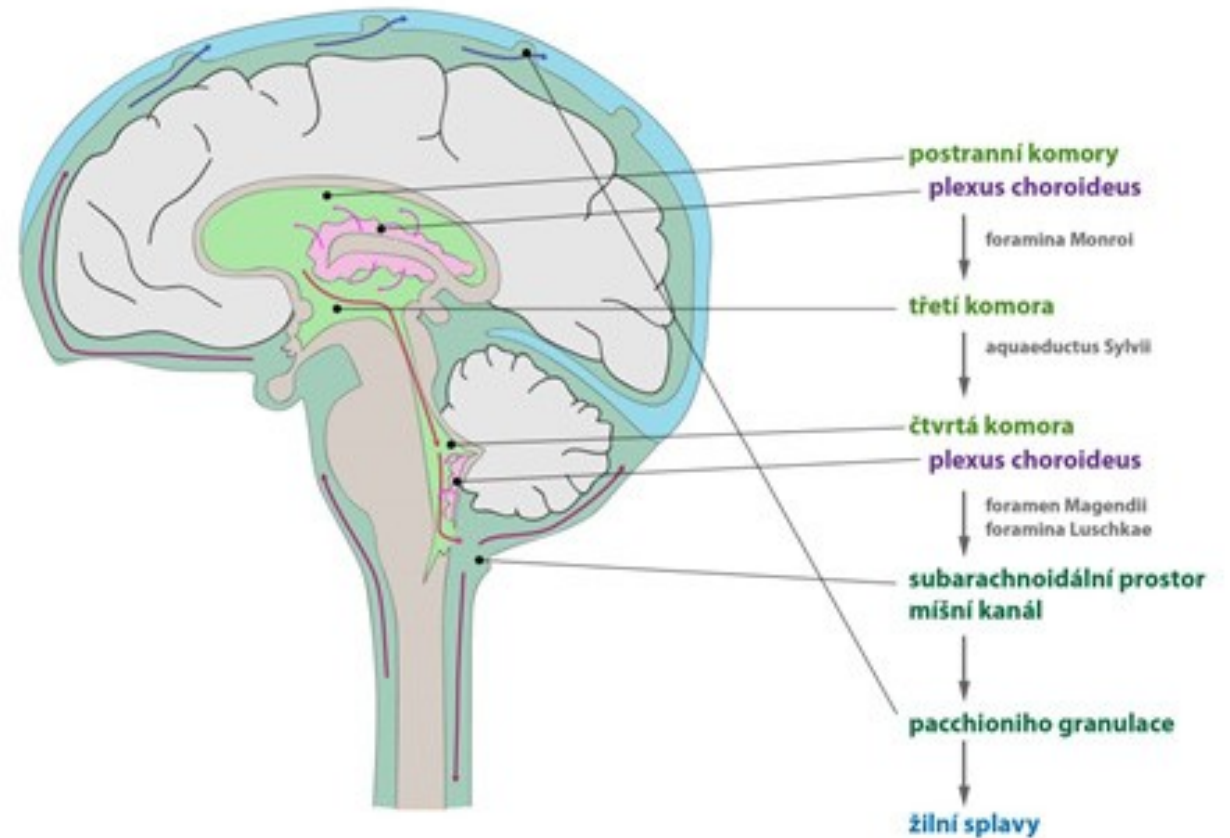
Mozek – komorový systém



- <https://youtu.be/7B1w6lDw-yM>
- Mozkomíšní mok, liquor cerebrospinalis
- <http://fb.lt.cz/skripta/regulacni-mechanismy-2-nervova-regulace/12-likvor-hematoencefalicka-a-hematolikvorova-bariera/>

Mozkomíšní mok, lat. Liquor cerebrospinalis

- Komorový systém
- <https://youtu.be/P49ZJWpu06k>
- https://is.muni.cz/el/med/podzim2016/BLK051c/um/vysetreni_mozkomisniho_moku/pages/01-anatomicke-fyziologicke-poznatky.html

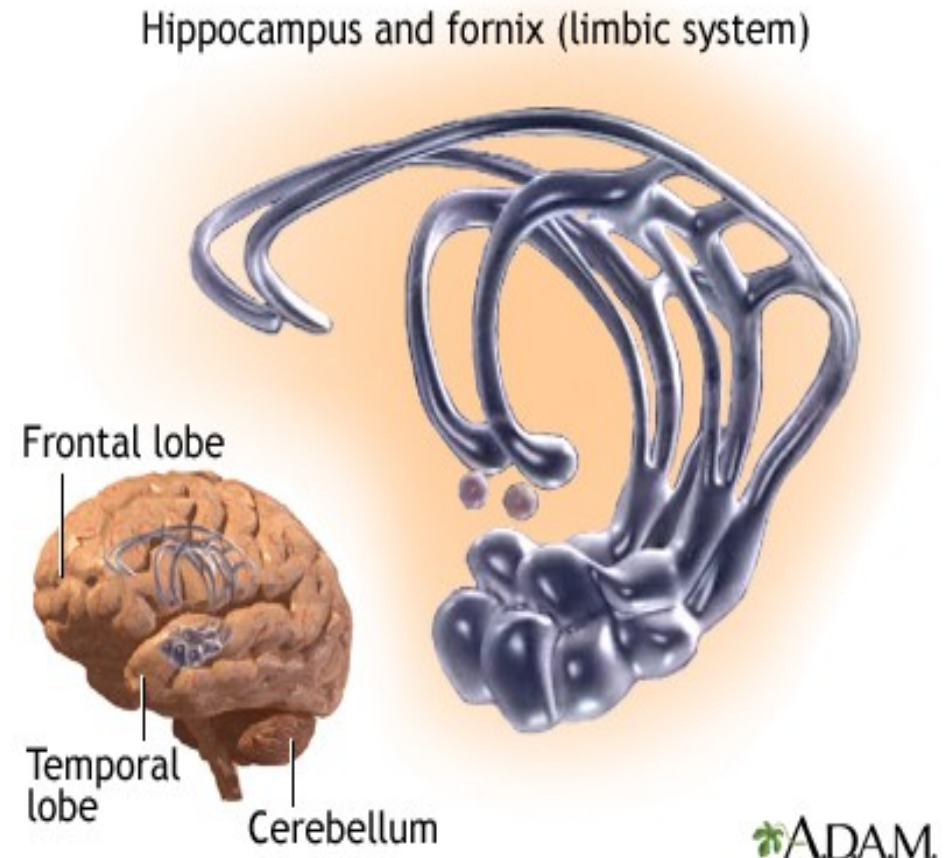


Diencephalon, mezimozek

- <https://youtu.be/5BvVjjs664w?si=OvTV3RyuUYYEXAgd>
 - <https://youtu.be/5BvVjjs664w>
 - <https://neuroscientificallychallenged.com/posts/know-your-brain-diencephalon>
- epitalamus
 - thalamus
 - subthalamus
 - hypothalamus.

Limbický systém, lat. Limbus = čes. límec

- <https://youtu.be/mN9y2LTg8nk>
- <https://youtu.be/lcmrASRBjxk>
- Limbický systém mozku je skupina struktur, které řídí emoce a chování.
- Thalamus, hypothalamus, hipokampus a amygdala, se podílí na tvorbě dlouhodobé paměti a je úzce spojen s čichovými strukturami (s čichem).
- https://cs.wikipedia.org/wiki/Limbický_systém

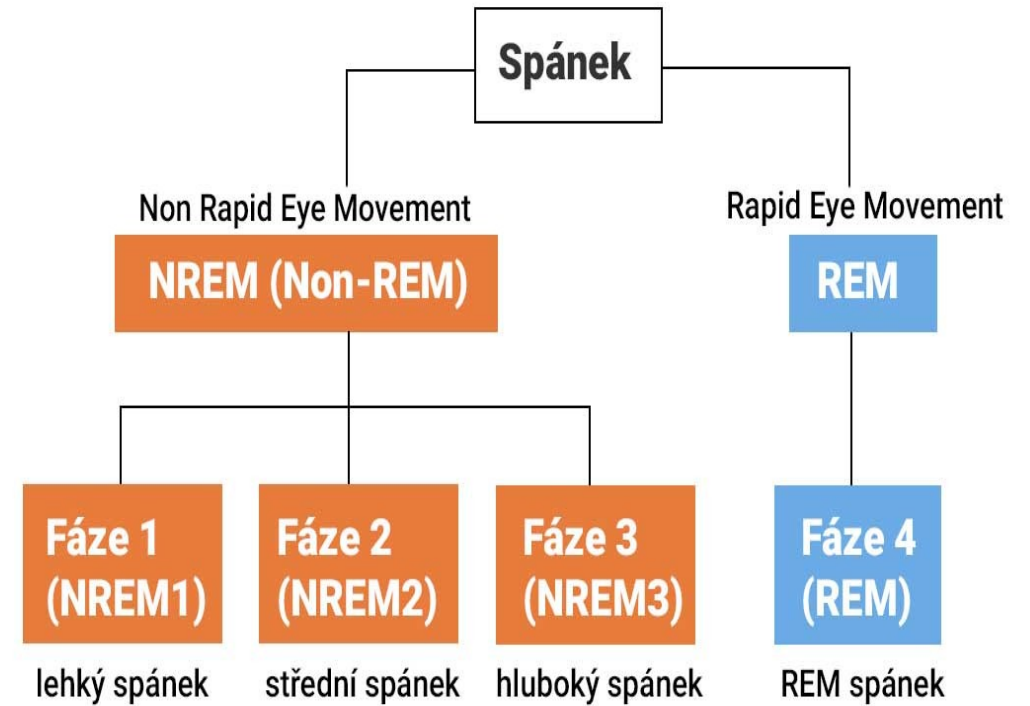


Parkinsonismus

- <https://youtu.be/ckn9zybpYZ8>

Spánek

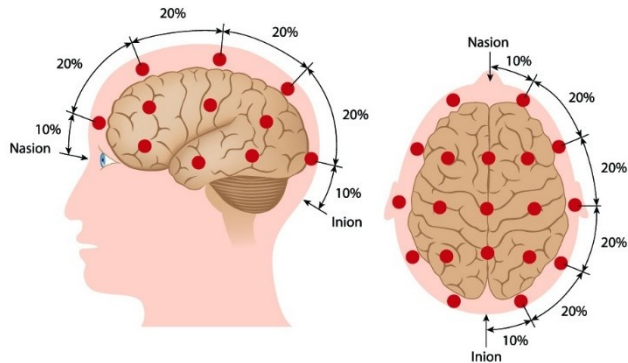
- REM
- Non REM
- <https://youtu.be/xrlqDgThA3c>
- <https://slideplayer.cz/slide/2324849/>



EEG, <https://youtu.be/3M7xj1Tomhw>

Umístění elektrod při vyšetření EEG

EEG – neinvazivní vyšetření
zápis elektrické mozkové aktivity v podobě křivek.
Elektrody rozmístěny po celé hlavě – dle systému 10/20
nazývá se podle způsobu rozměření,
kdy je obvod hlavy rozdělen na úseky po 10% a 20%



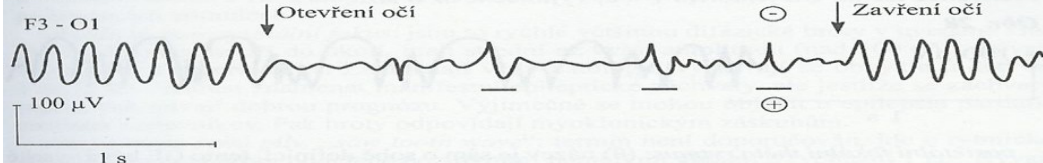
kraniometrický bod
ve střední čáře frontonazálního švu

antropometrický měrný bod
odpovídající výstupku
na kosti týlní uprostřed šupiny

Klasifikace EEG elementů (7)

- lambda aktivita - difúzní nebo trifázický element, doprovází pohyby očí, patologicky může být ve zvýšené míře u nystagmu a kmenových lézí

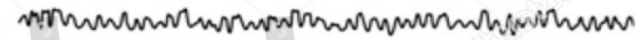
Obr. 25



- <https://www.biofeedback-rhb.cz/eeg-biofeedback/>

Normal Adult Brain Waves

Awake with
mental activity



Beta
14-30 Hz

Awake and
resting



Alpha
8-13 Hz

Sleeping



Theta
4-7 Hz

Deep sleep

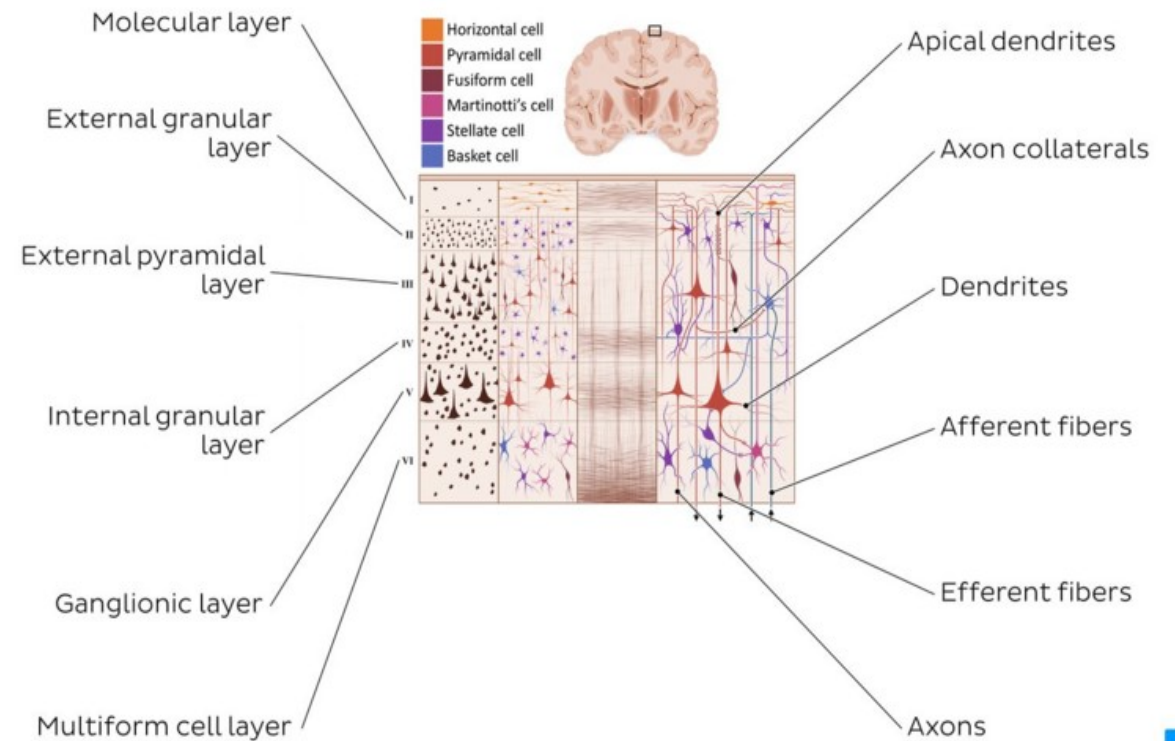
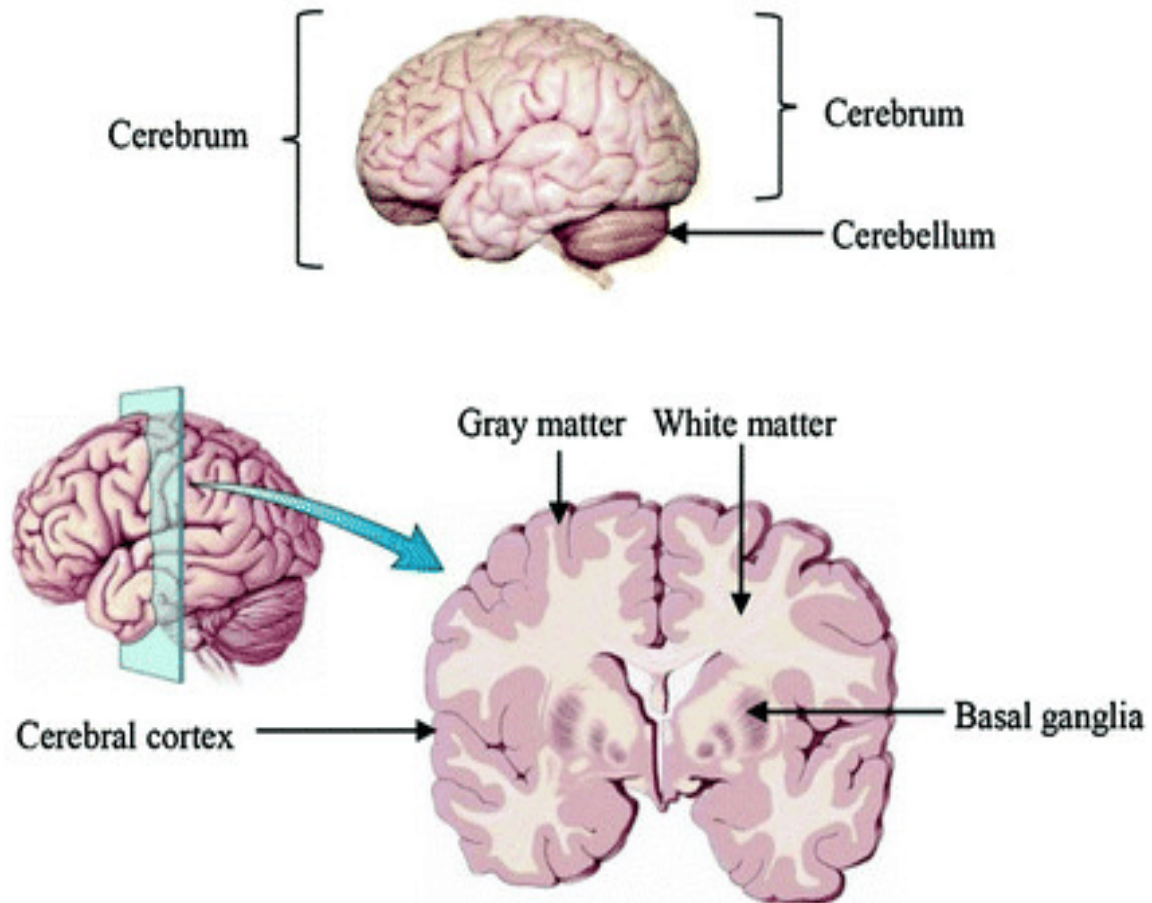


Delta
<3.5 Hz

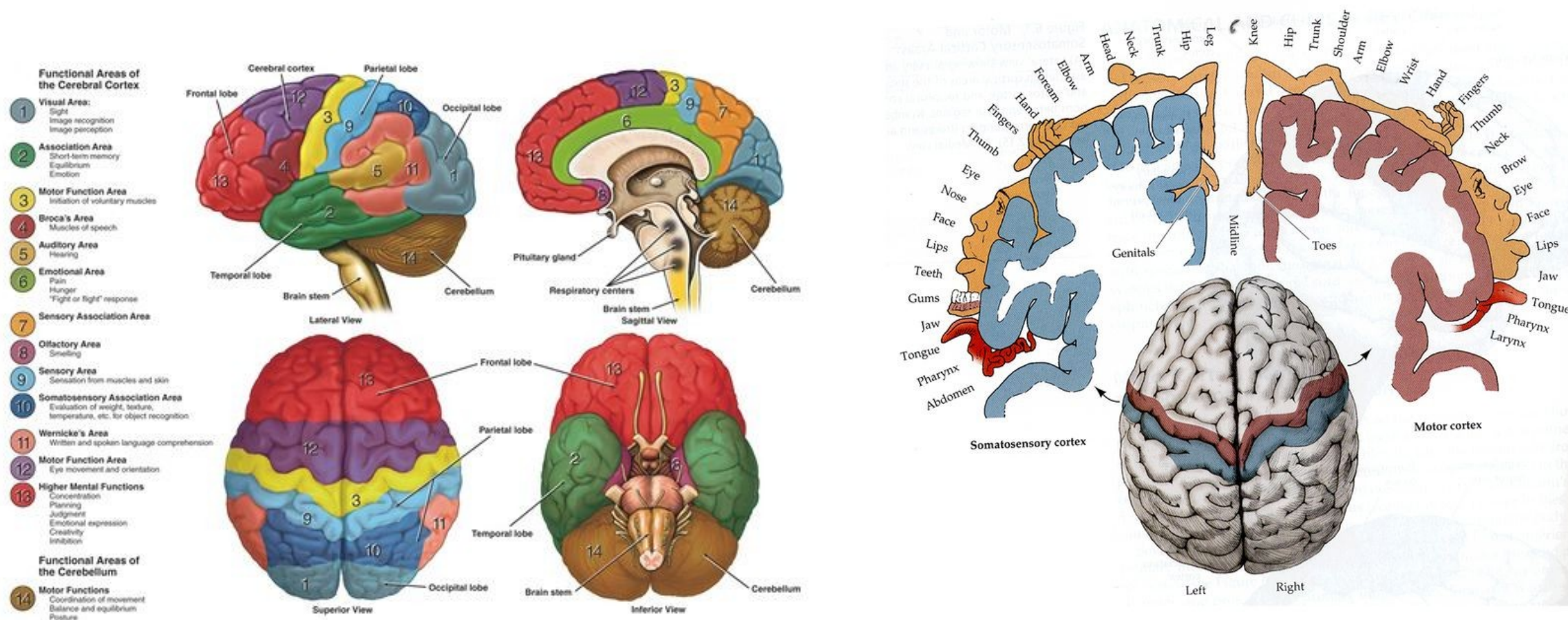
1 sec

https://www.google.com/search?sca_esv=591329734&sxsrf=A M9HkkmWCeYmVMYHk3UBG_8PKFBOKzjanaA:1702677067170 &q=vlny+eeg&tbm=isch&source=lnms&sa=X&ved=2ahUKEwiW qYWutpKDAXVE0gIHHW9dCf0Q0pQJegQIDBAB&biw=1273&bih =534&dpr=1.5#imgrc=T8GshROXjBI9yM

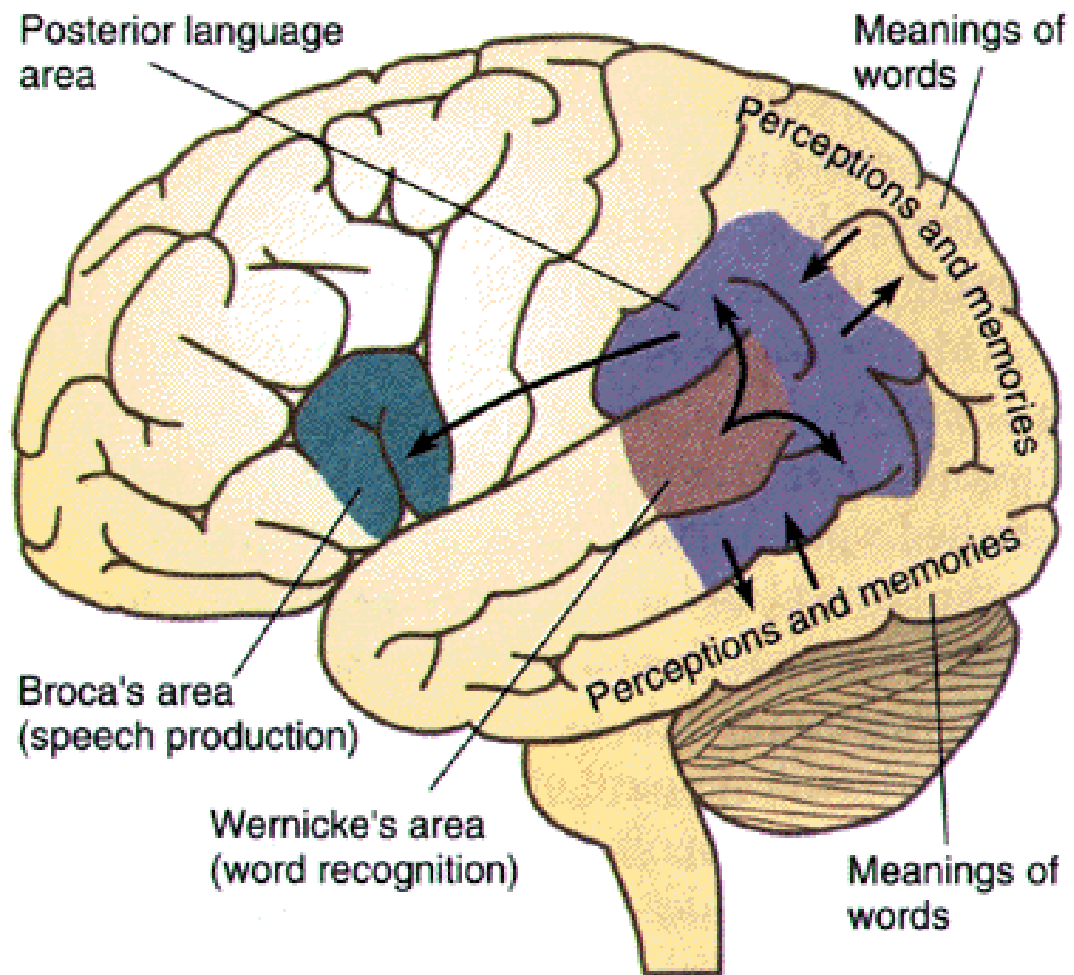
Mozková kůra



Mozková kůra



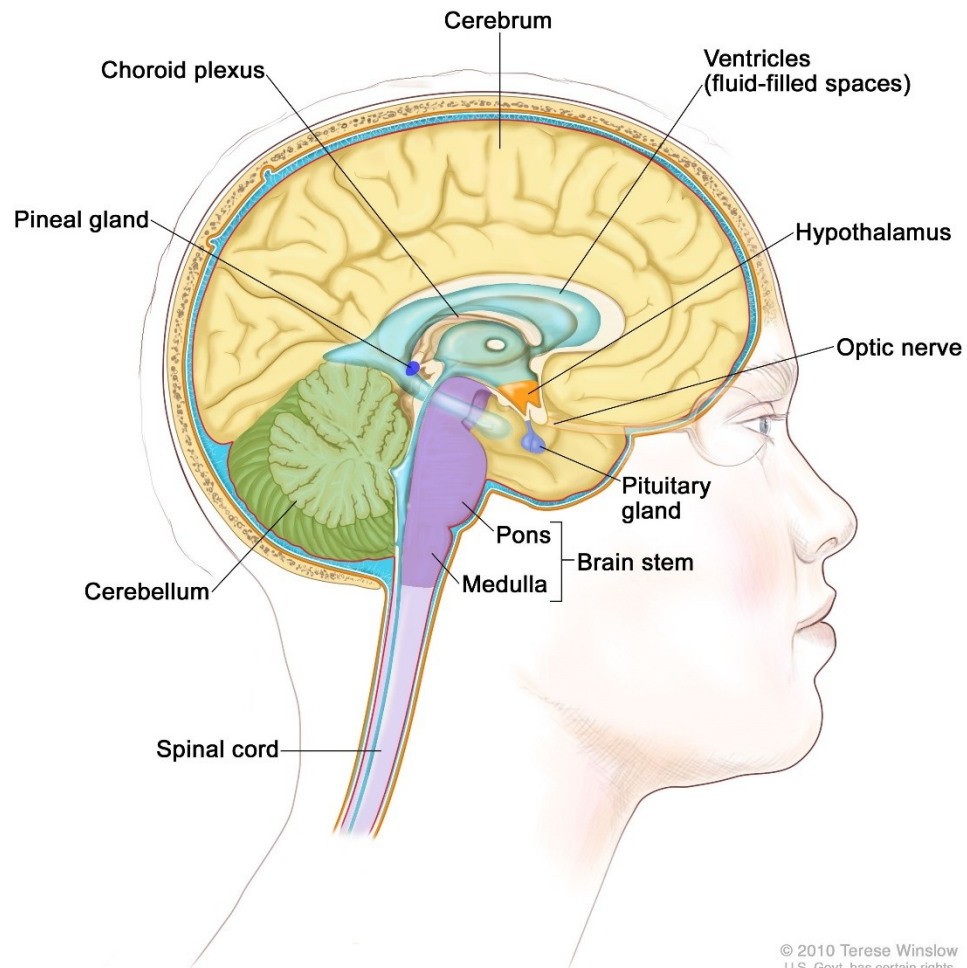
Řeč



- Afázie
- Motorická
- Senzorická
- Anamnestická

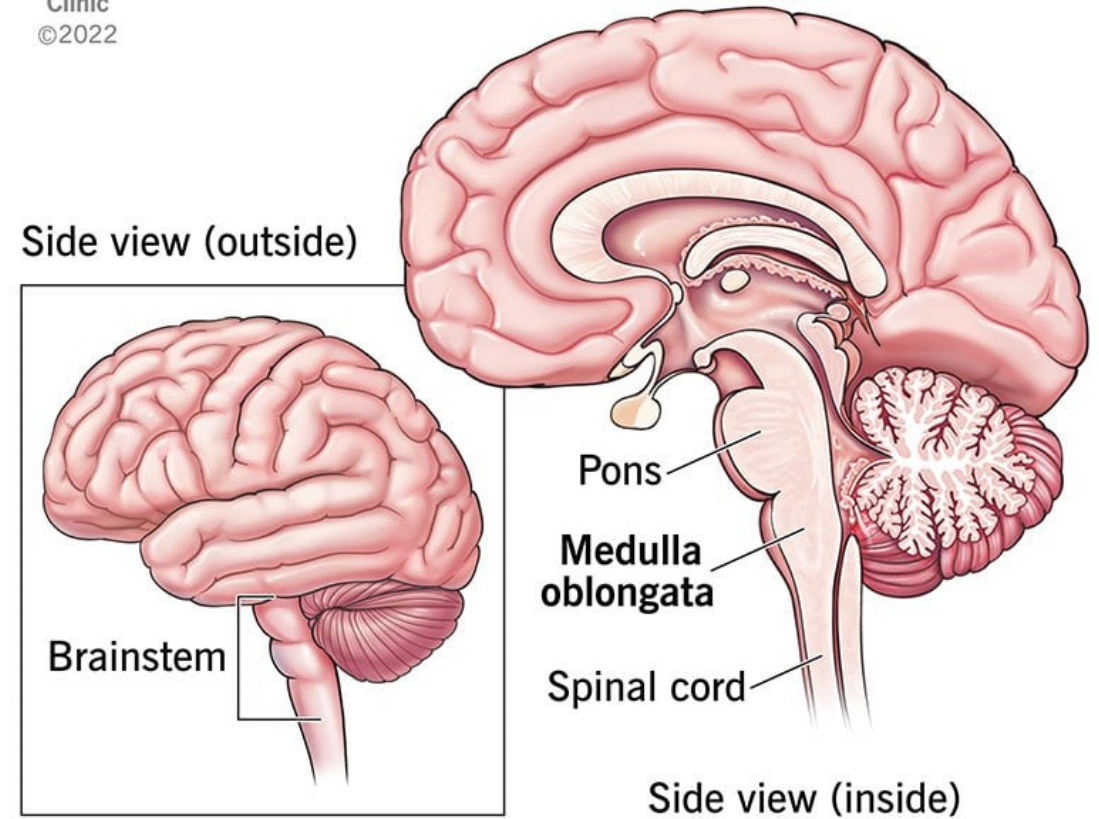
<https://cs.wikipedia.org/wiki/Af%C3%A1zie>

Prodloužená mícha

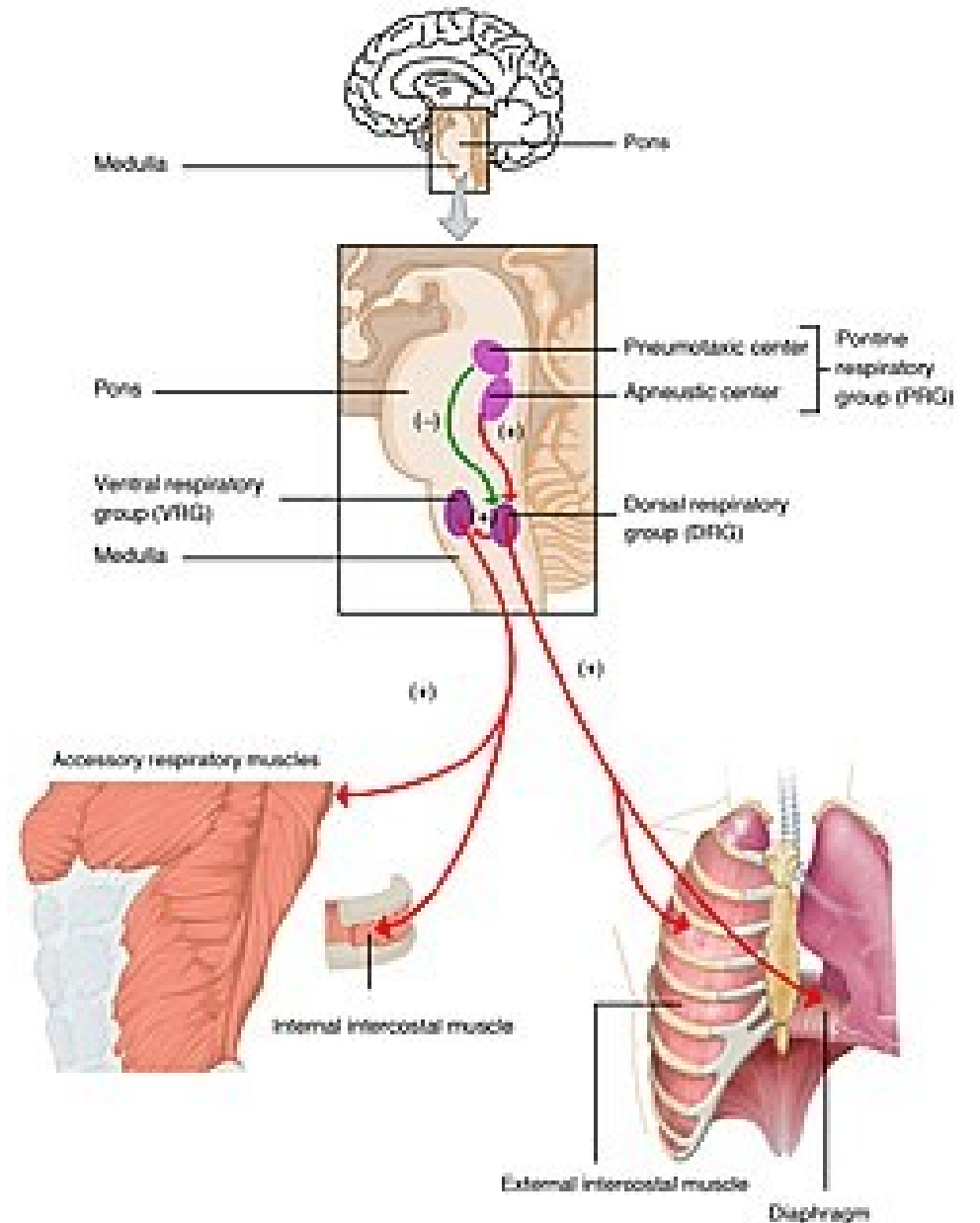


Cleveland
Clinic
©2022

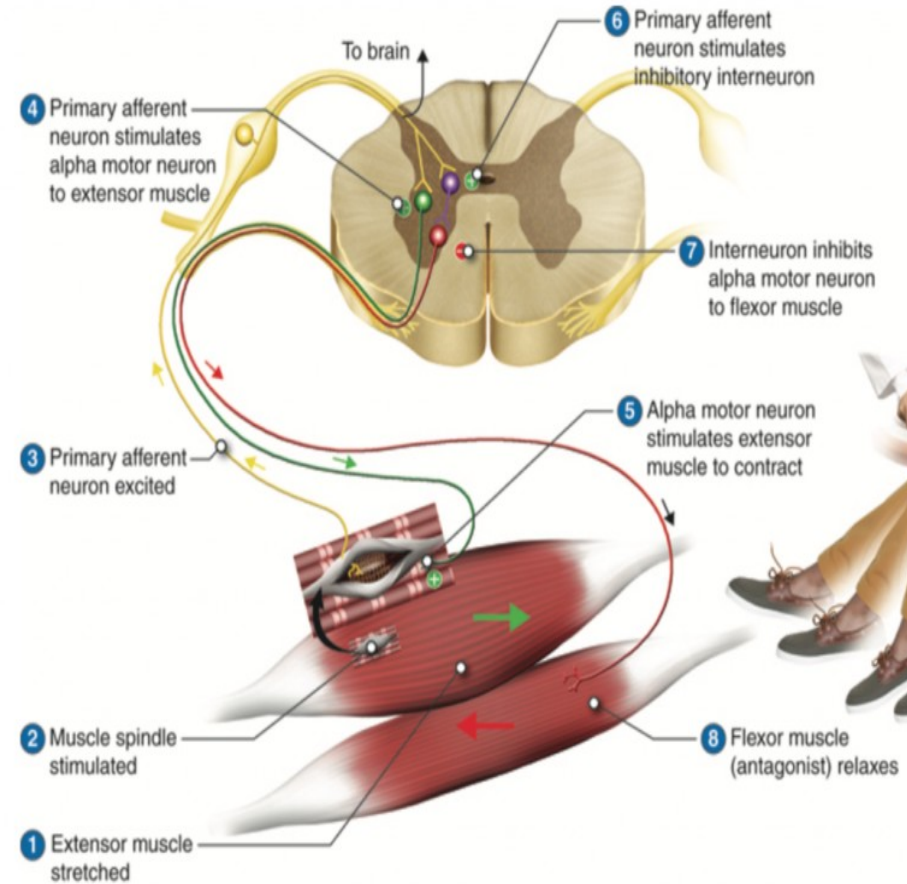
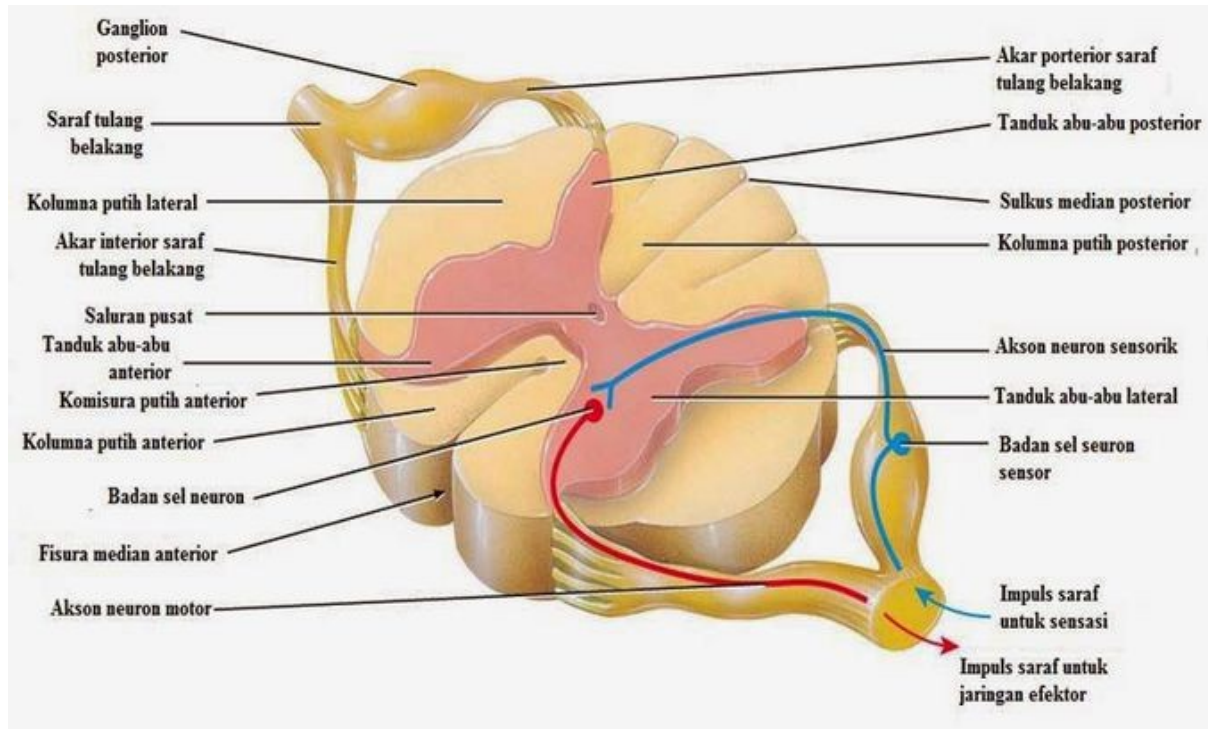
Medulla oblongata



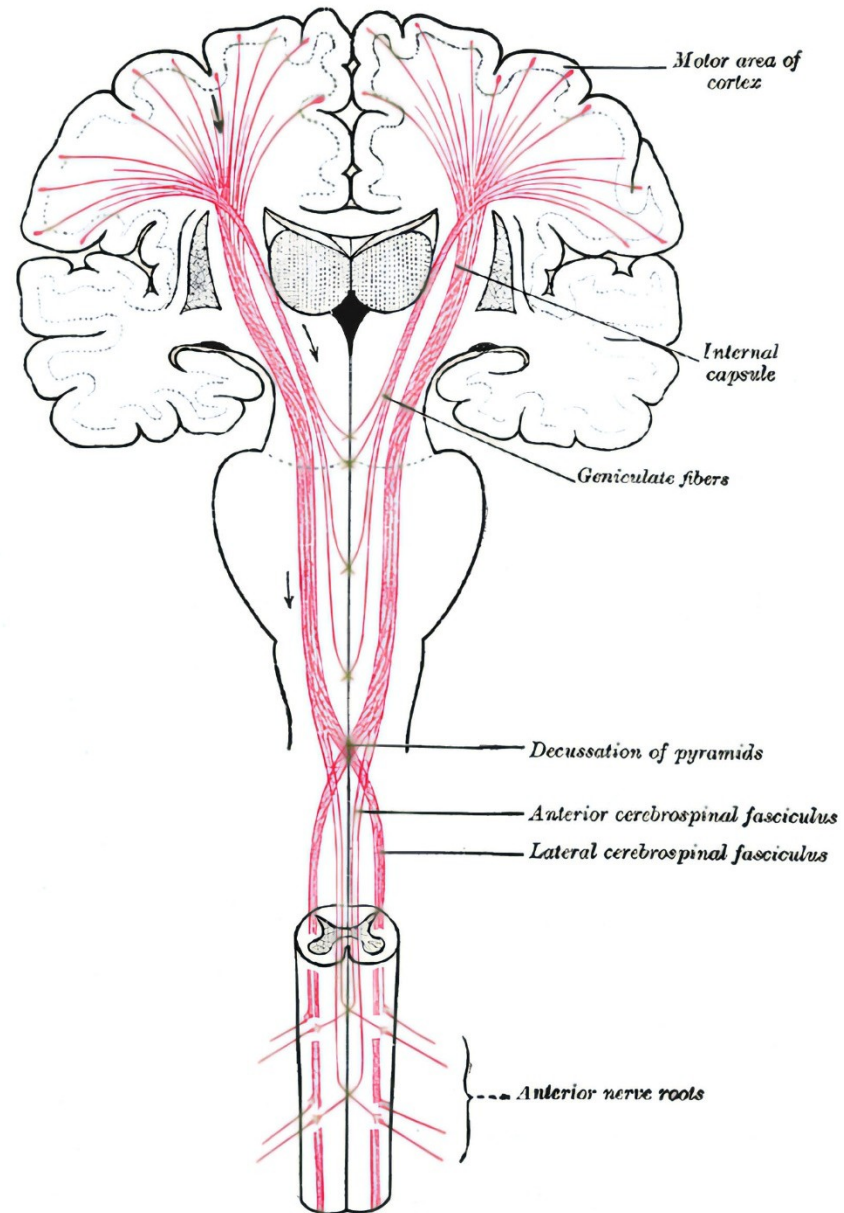
Prodloužená mícha



Mícha, lat. medulla spinalis, reflexní oblouk



Pyramidová dráha

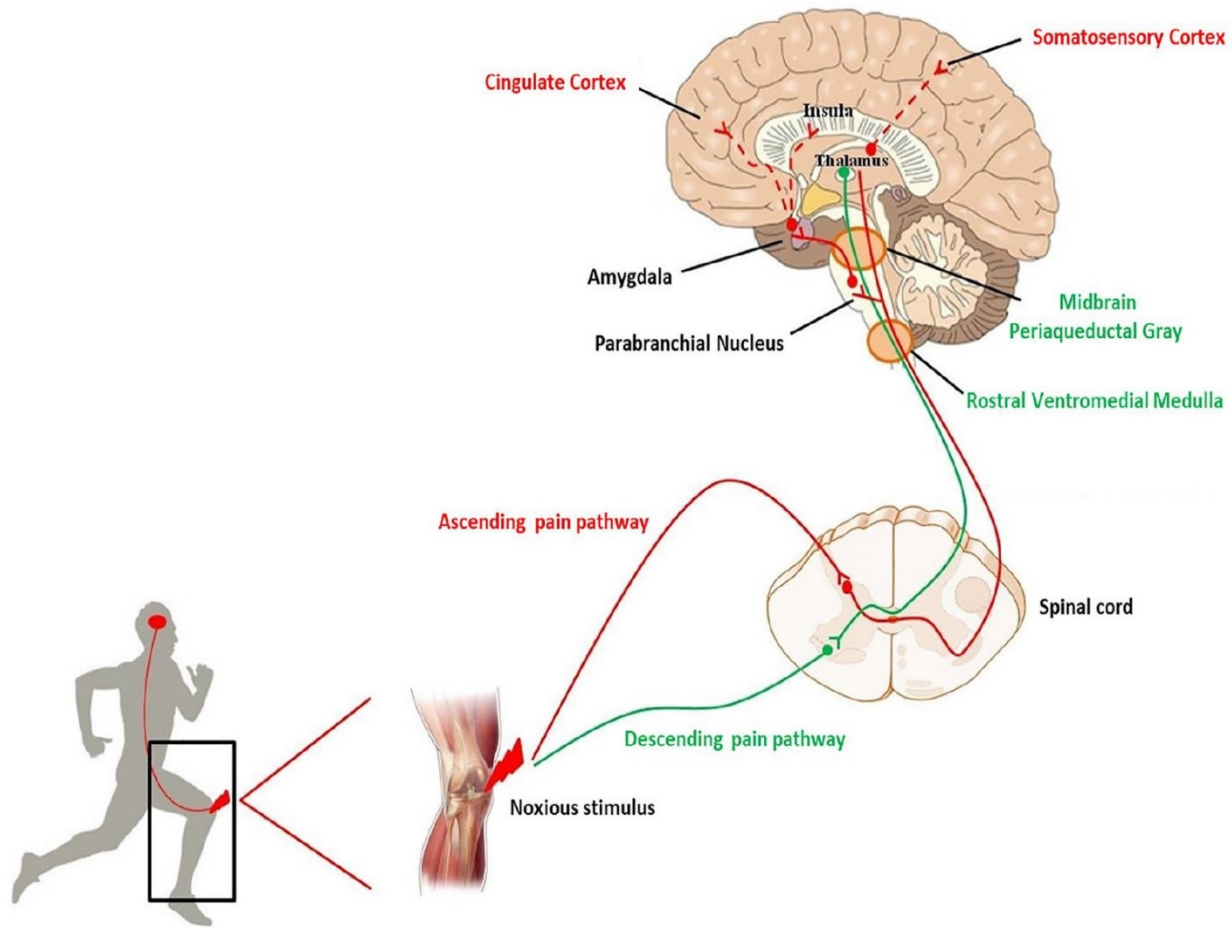


- Tractus corticospinalis
- Hlavní motorická dráha
 - Jednoneuronová: z mozkové kůry do míchy
 - 80% vláken se v úrovni prodloužené míchy kříží- decussatio pyramidum
- Fce: volní motorika
- Poruchy: hemiplegie
- Tractus corticobulbaris
- Fce: volní motorika obličeje a krku

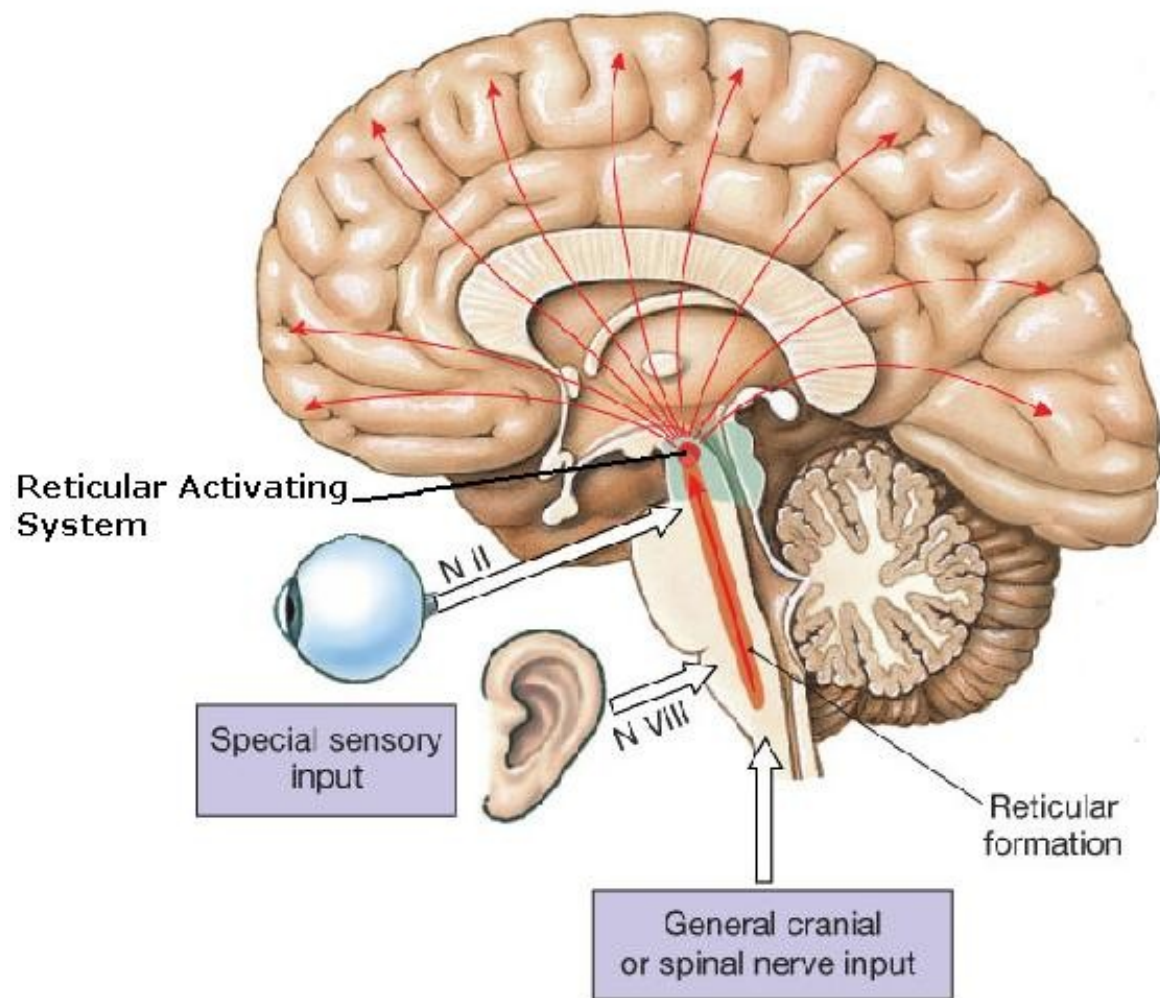
Extrapyramidová dráha

- Basální ganglia
- Mícha
- <https://youtu.be/B88BNYWVkwE>
- <https://www.gastroepato.it/en/discinesie.htm>
- Poruchy:
- Chorea
- Atetóza
- Parkinsonova choroba

Dráha bolesti



Retikulární formace



Retikulární formace

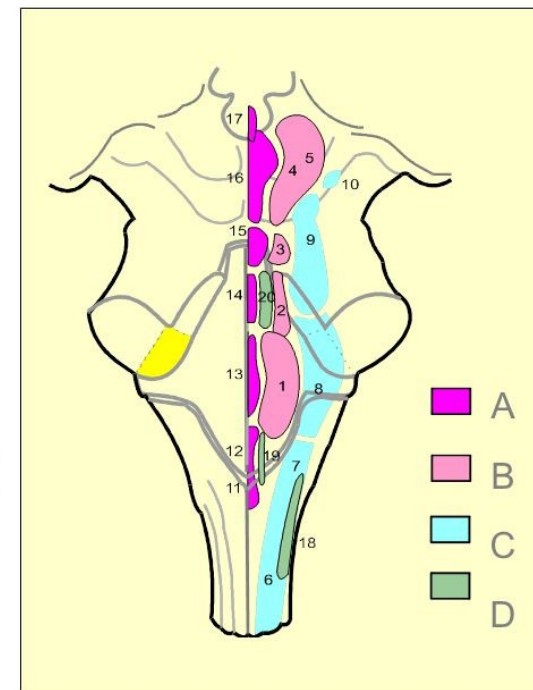
A. nuclei raphes

B. mediální skupina jader

C. laterální skupina jader

D. předmozečková
(precerebelární) retikulární
jádra

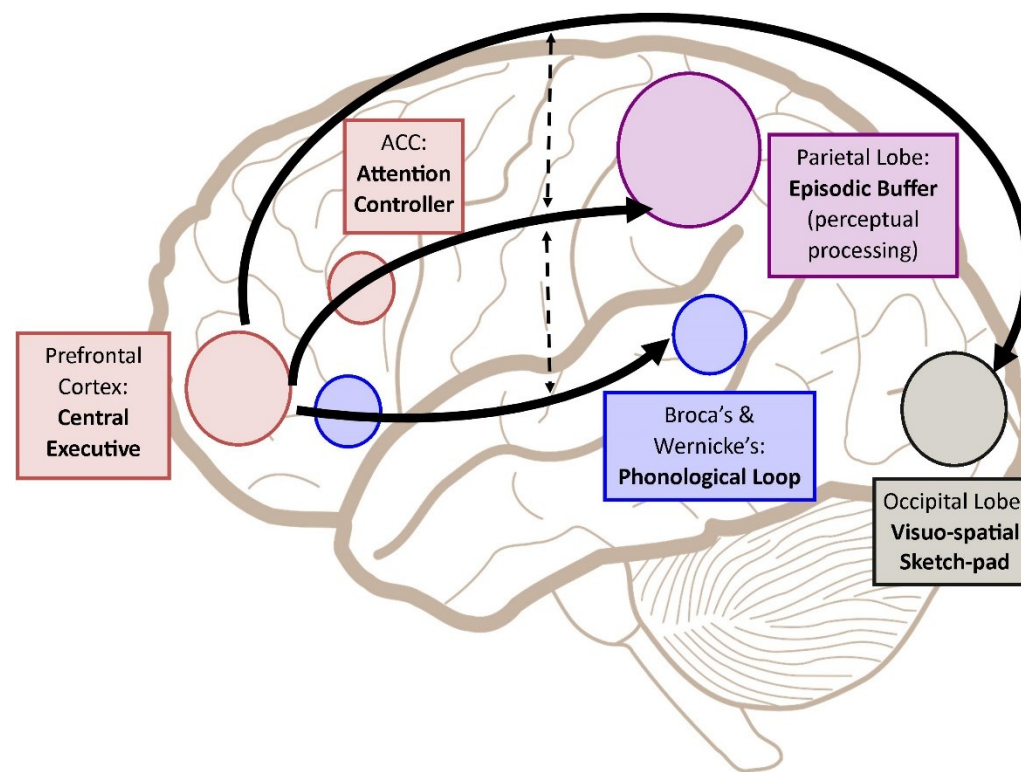
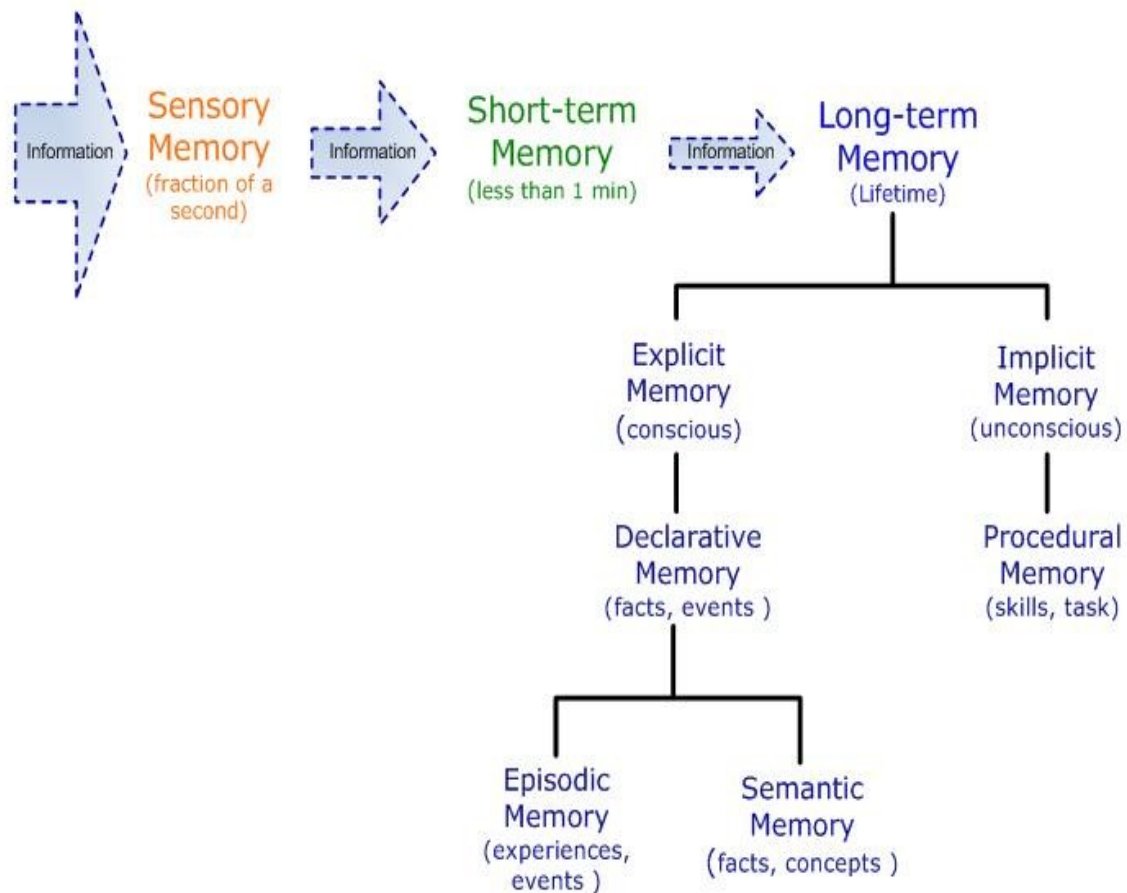
E. monoaminergní jádra



Retikulární formace

- https://cs.wikipedia.org/wiki/Retikul%C3%A1rn%C3%AD_formace

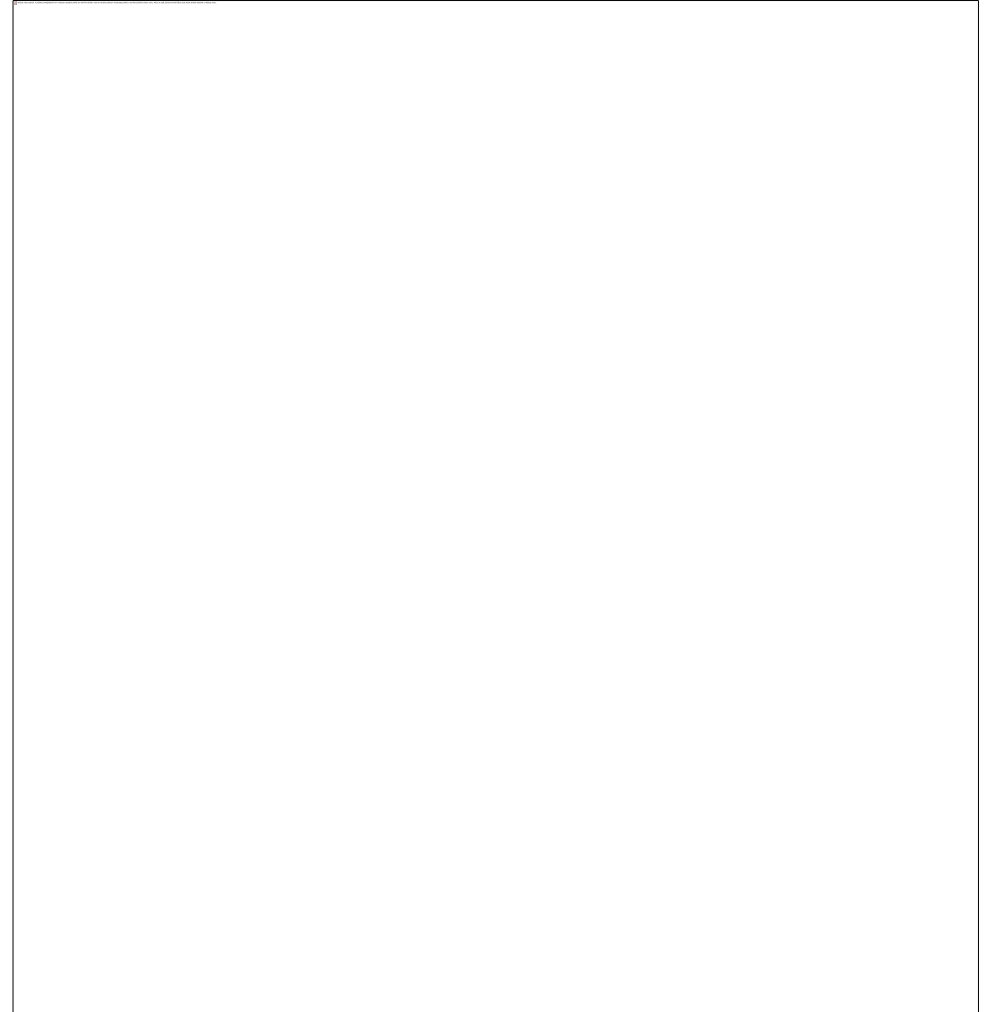
Paměť



Paměť

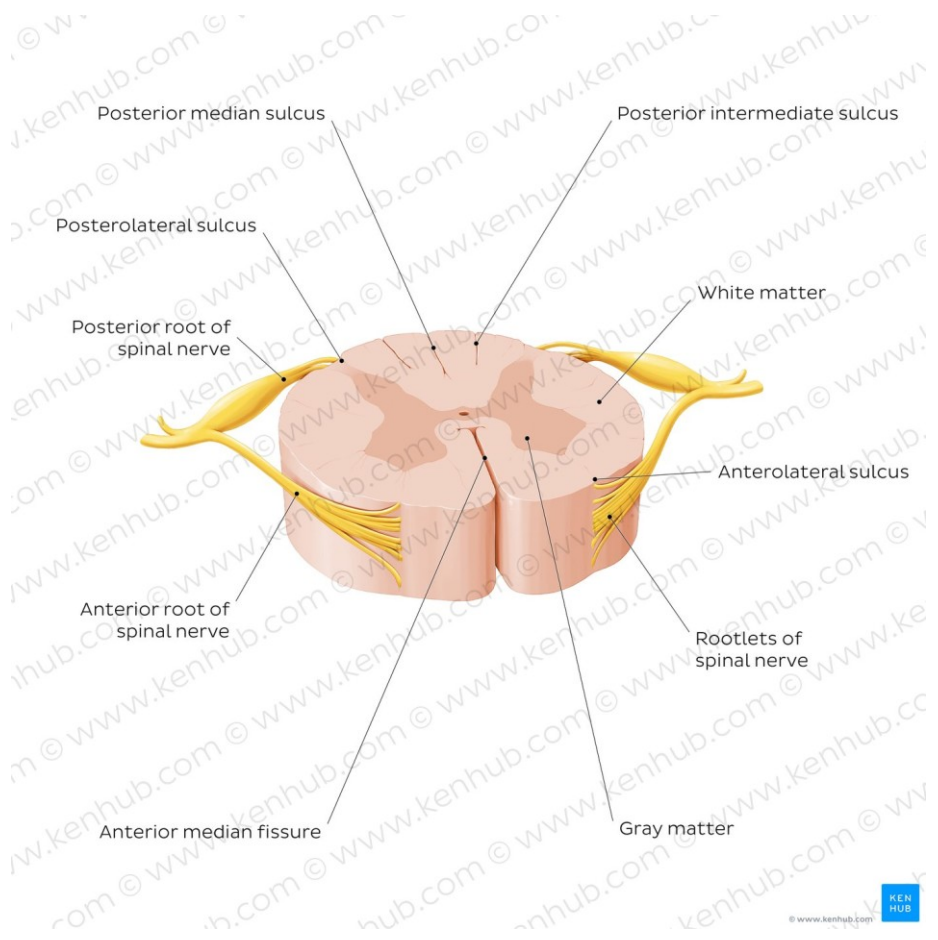
<https://www.prirodovedci.cz/zptejte-se-prirodovedcu/356>

- Při ukládání je důležitá hlavně souhra dvou mozkových oblastí: starobylé části mozkové kůry zvané hipokampus a nedaleké amygdaly. **Hipokampus** je centrem paměti na události, nazývané episodická či deklarativní. **Amygdala** je sídlem radosti, utrpení a strachu. Hlavně u žen umožňuje spojení amygdaly s paměťovými centry v koncovém mozku dlouhodobé uchování mnoha zážitků – i těch, které my muži většinou zapomeneme (první polibek a podobně).

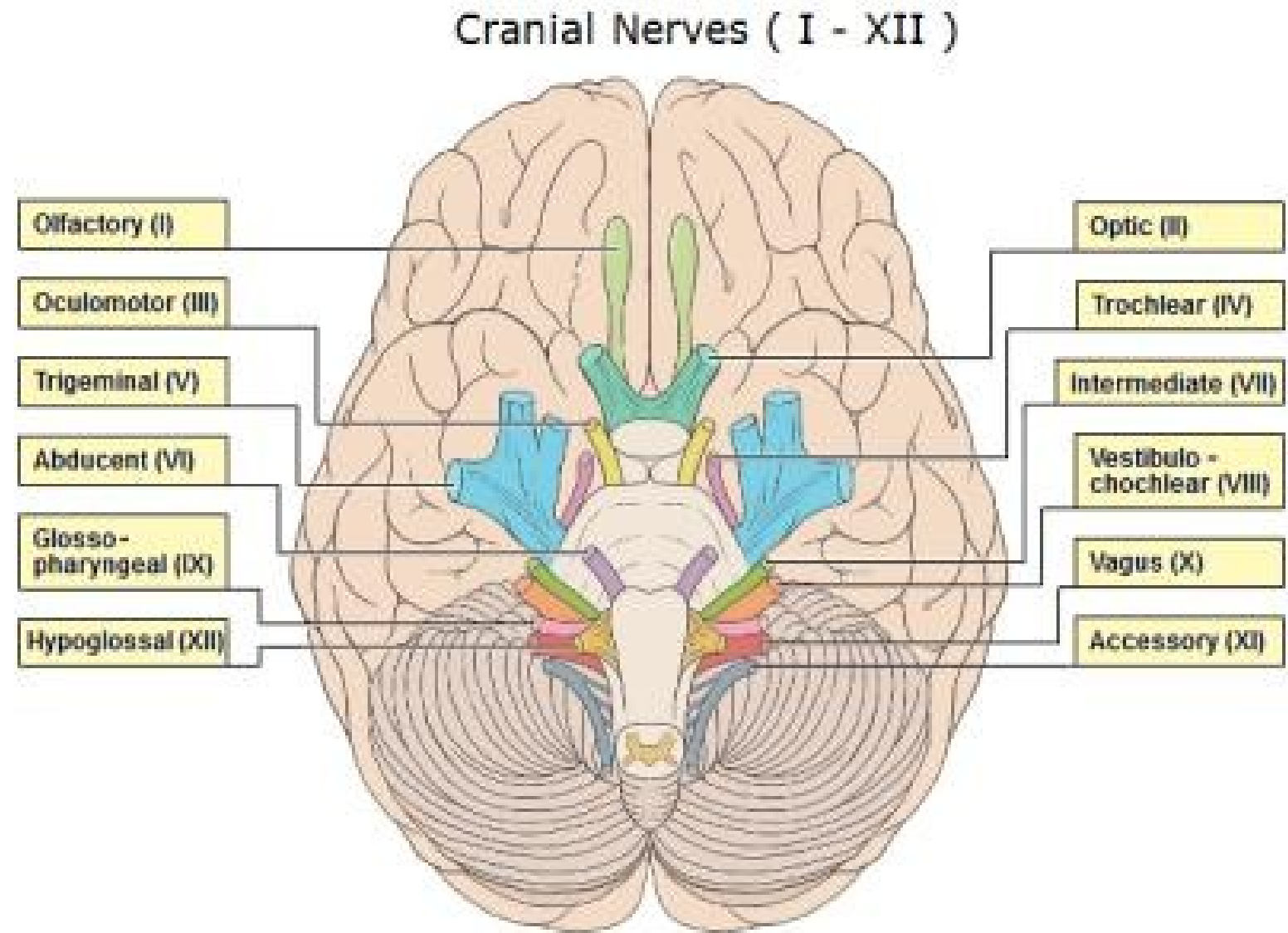


Mícha

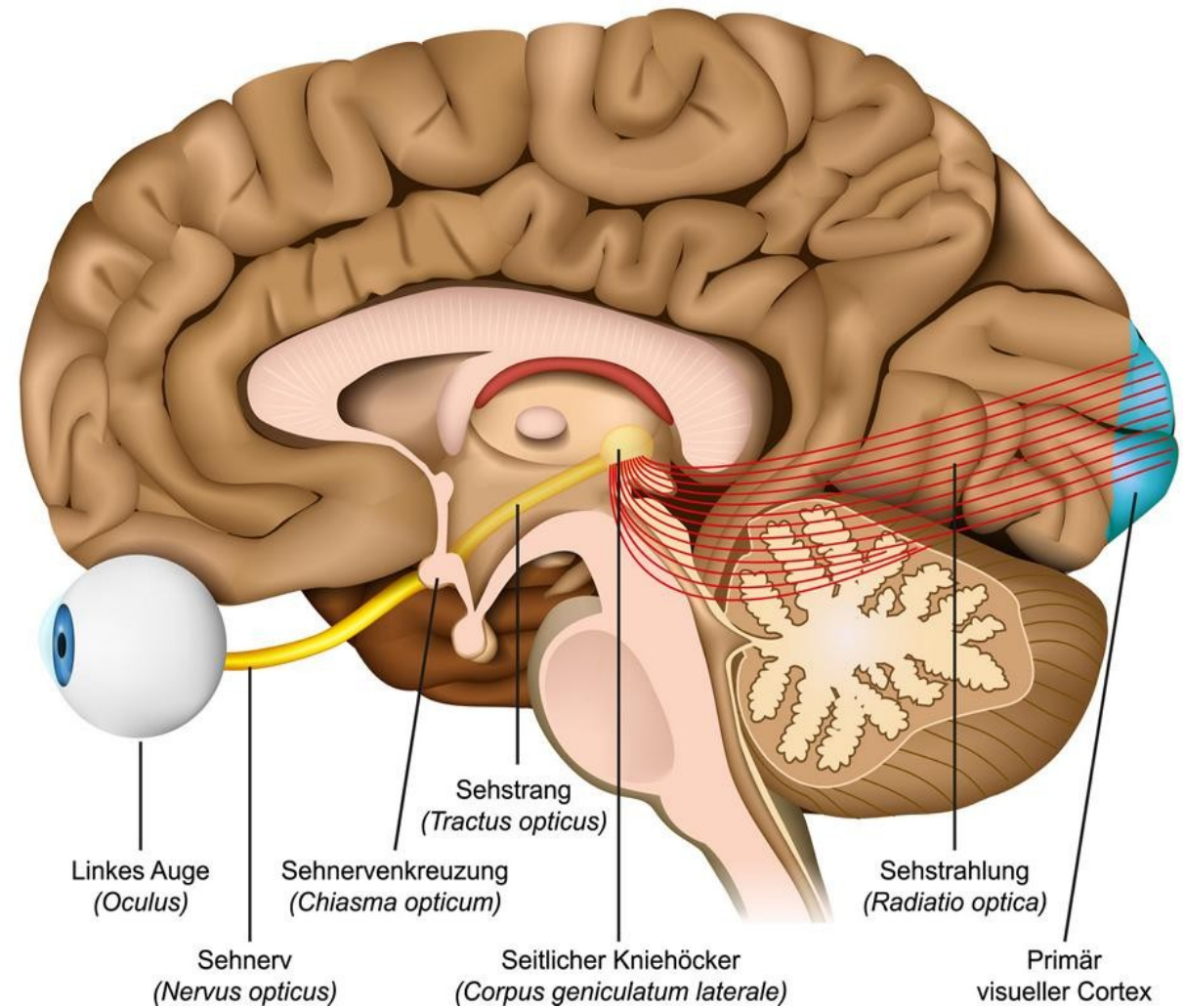
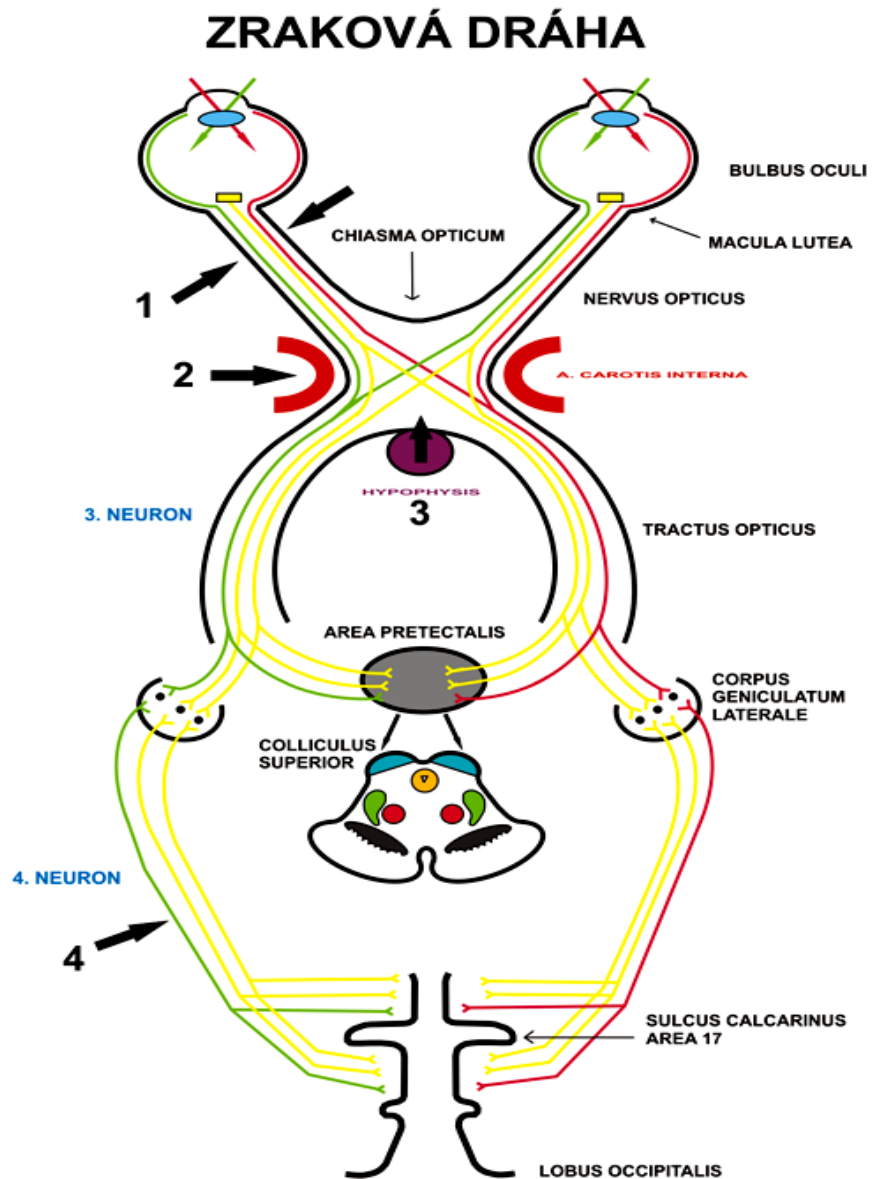
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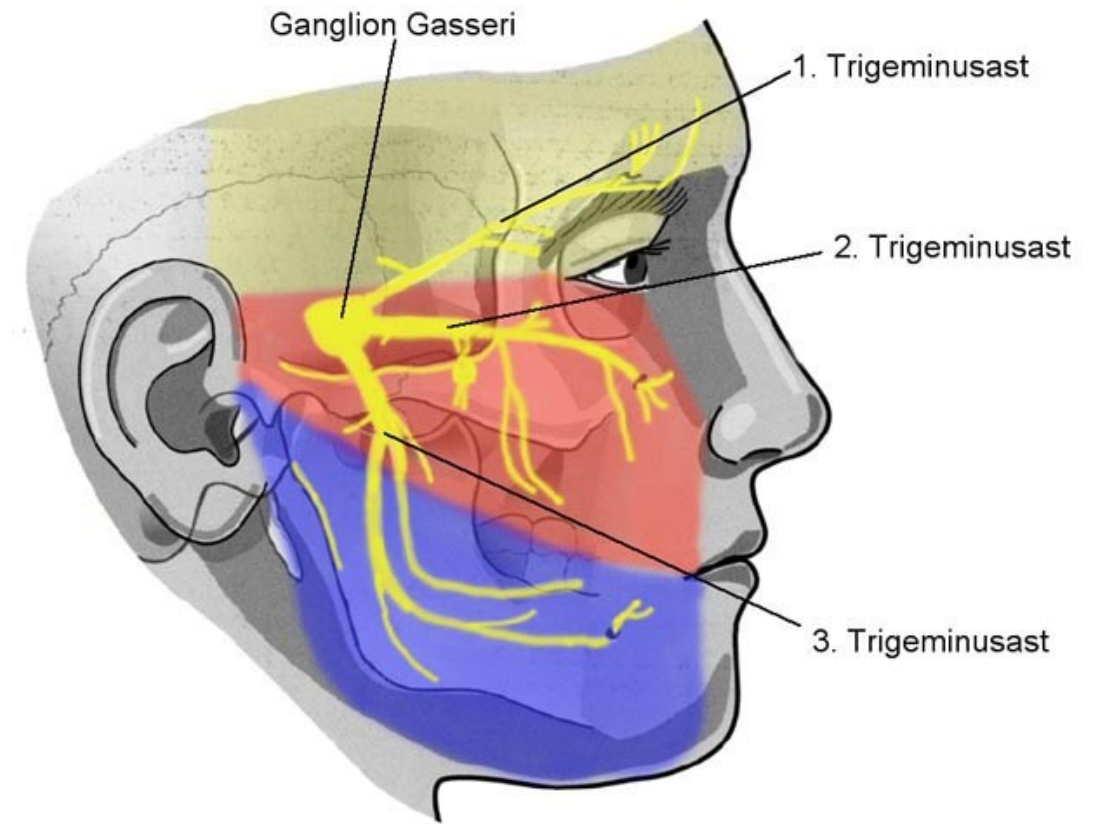
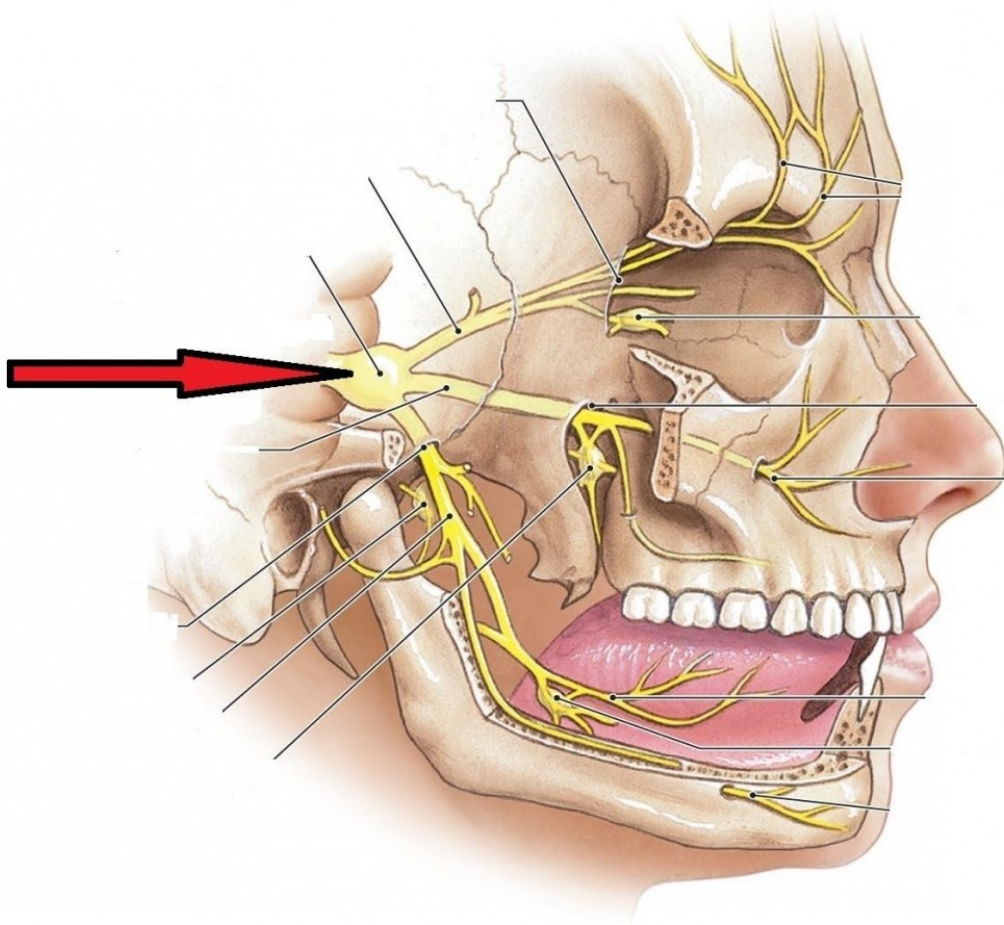
Hlavové nervy



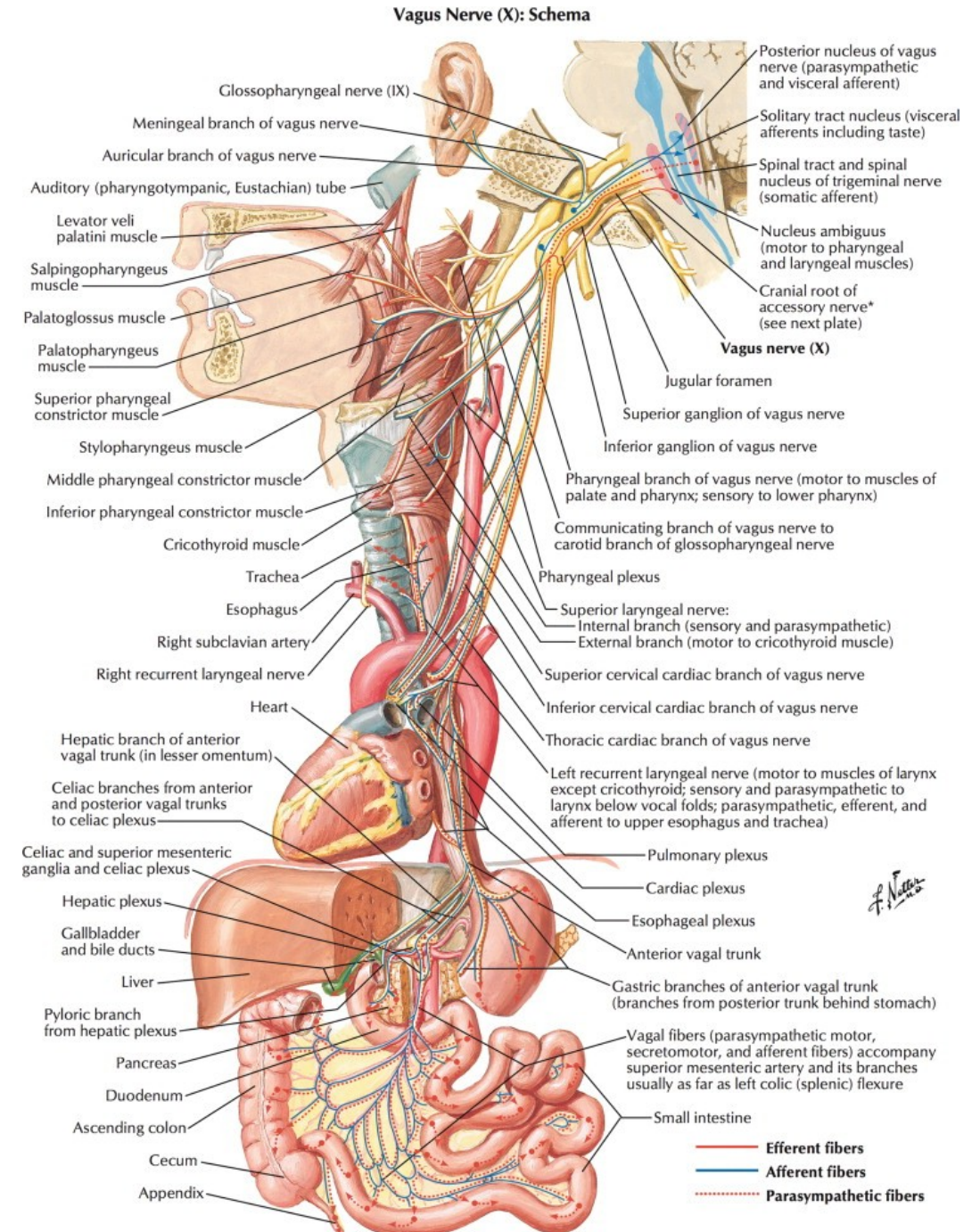
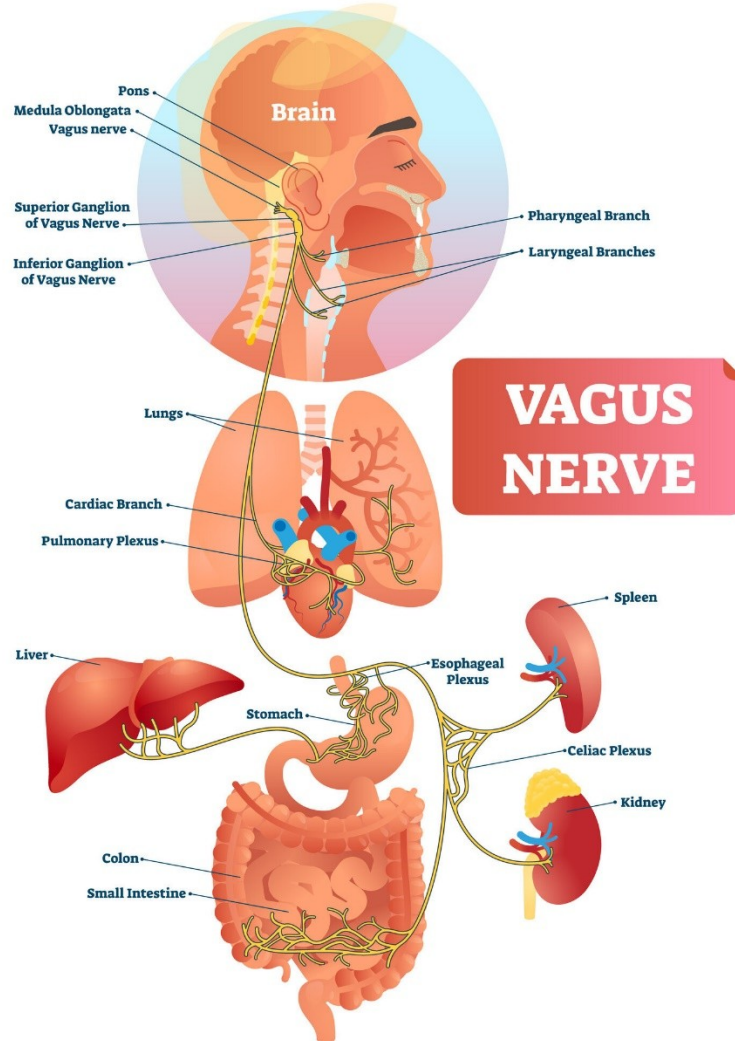
Nervus opticus



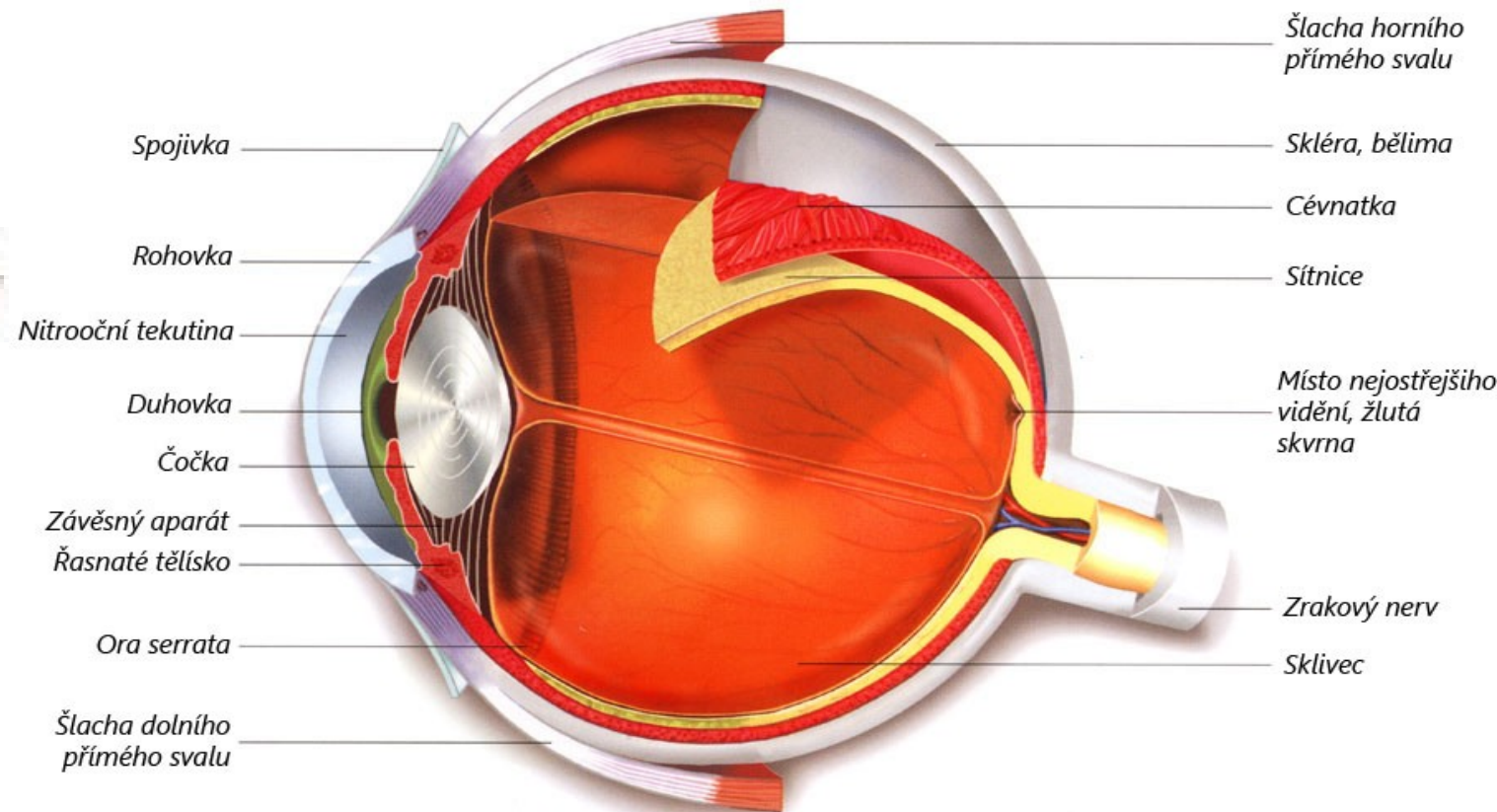
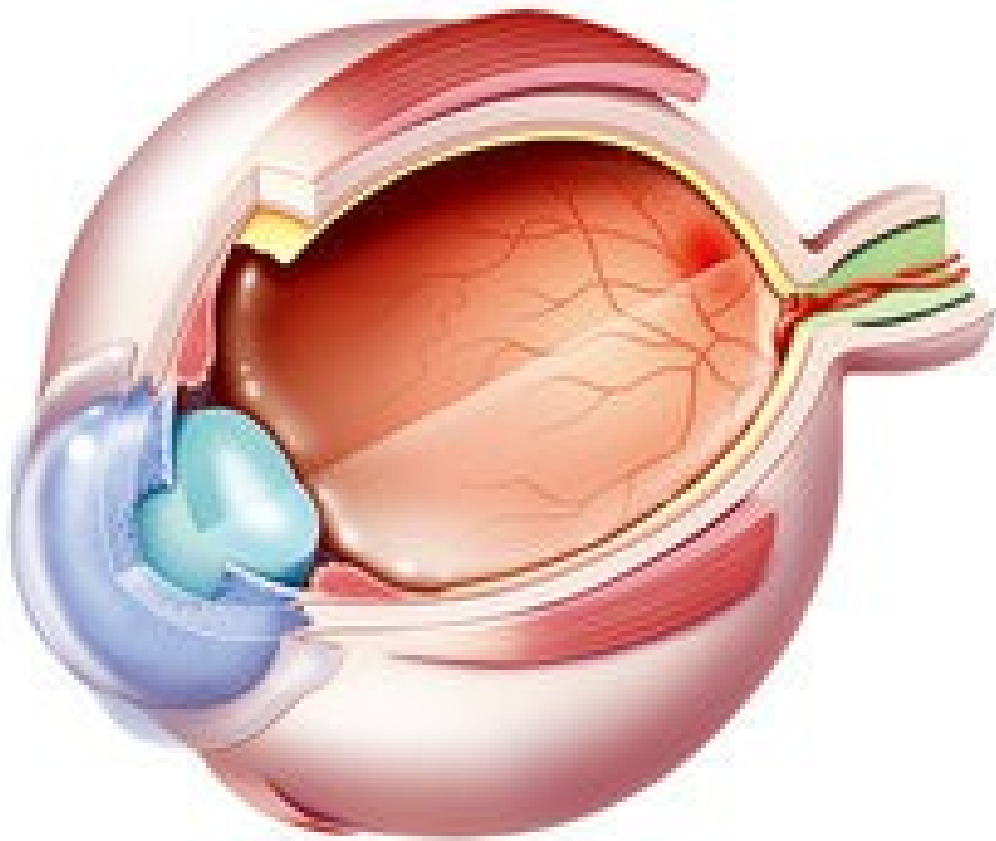
Nervus trigeminus

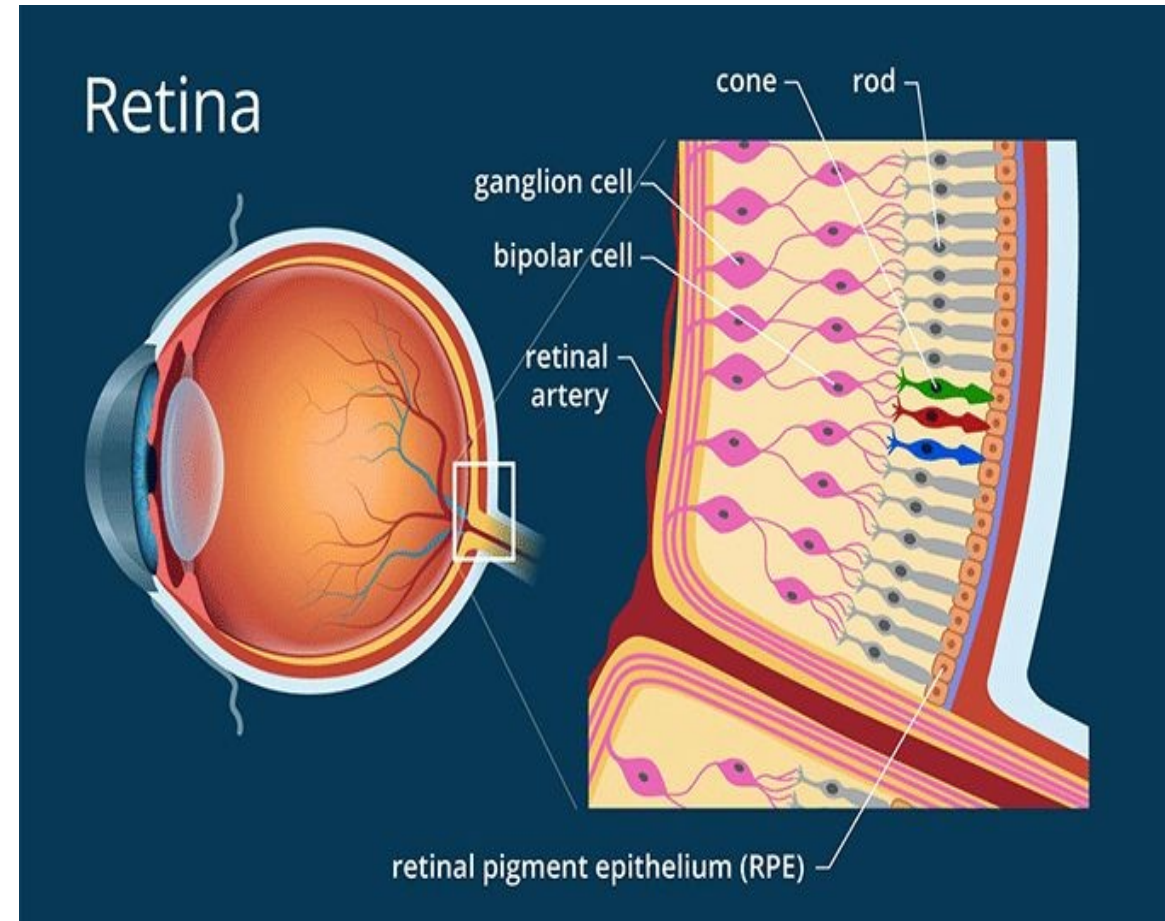
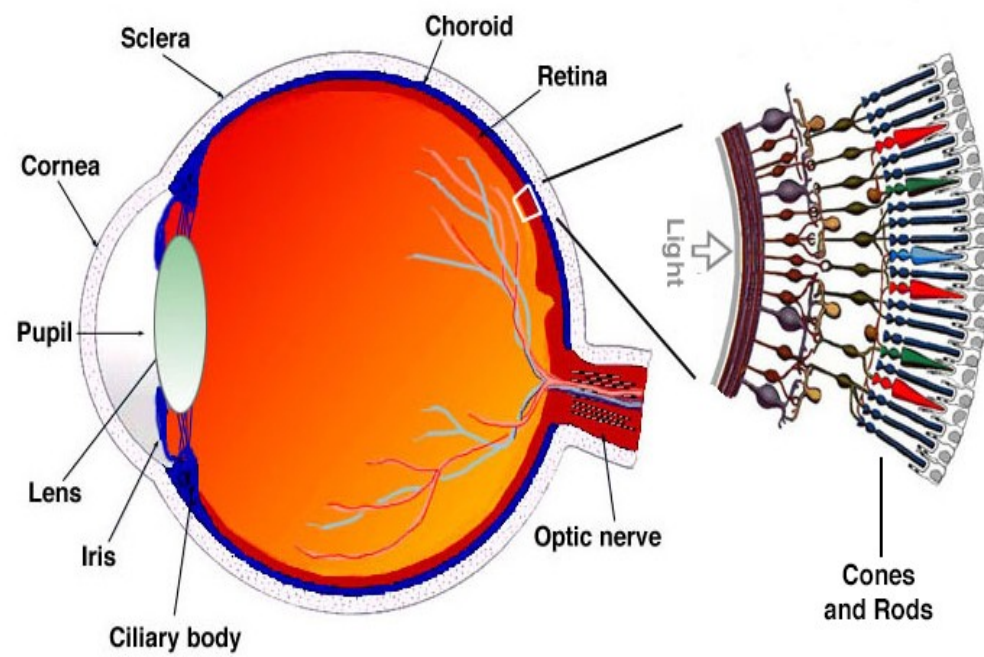


Nervus vagus

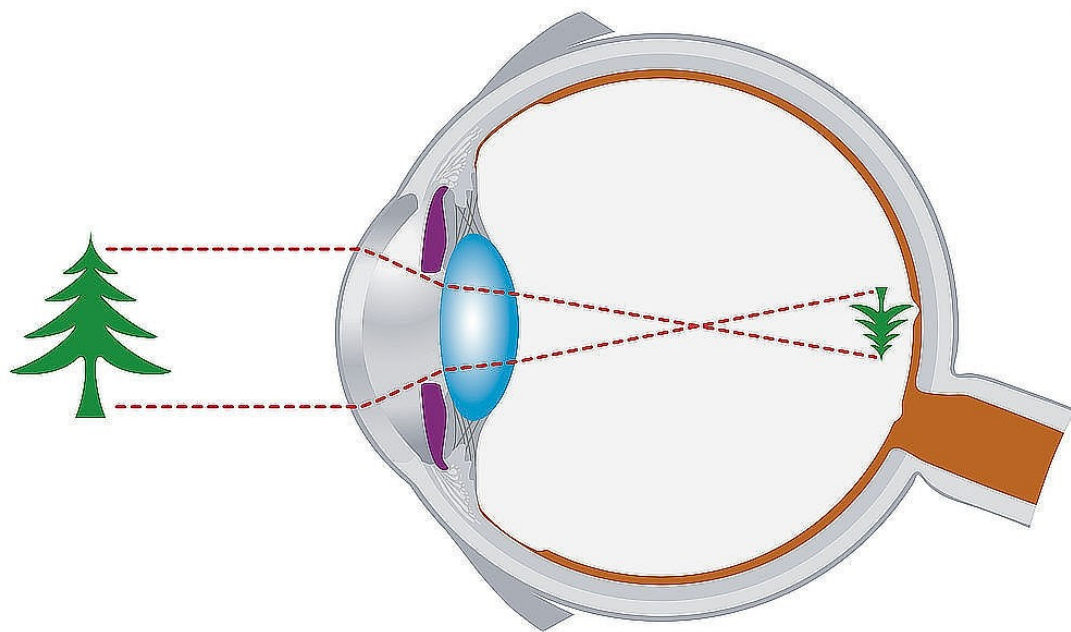


Okno, lat. bulbus oculi

[illegible]



Optický systém oka



Pohled na blízký předmět

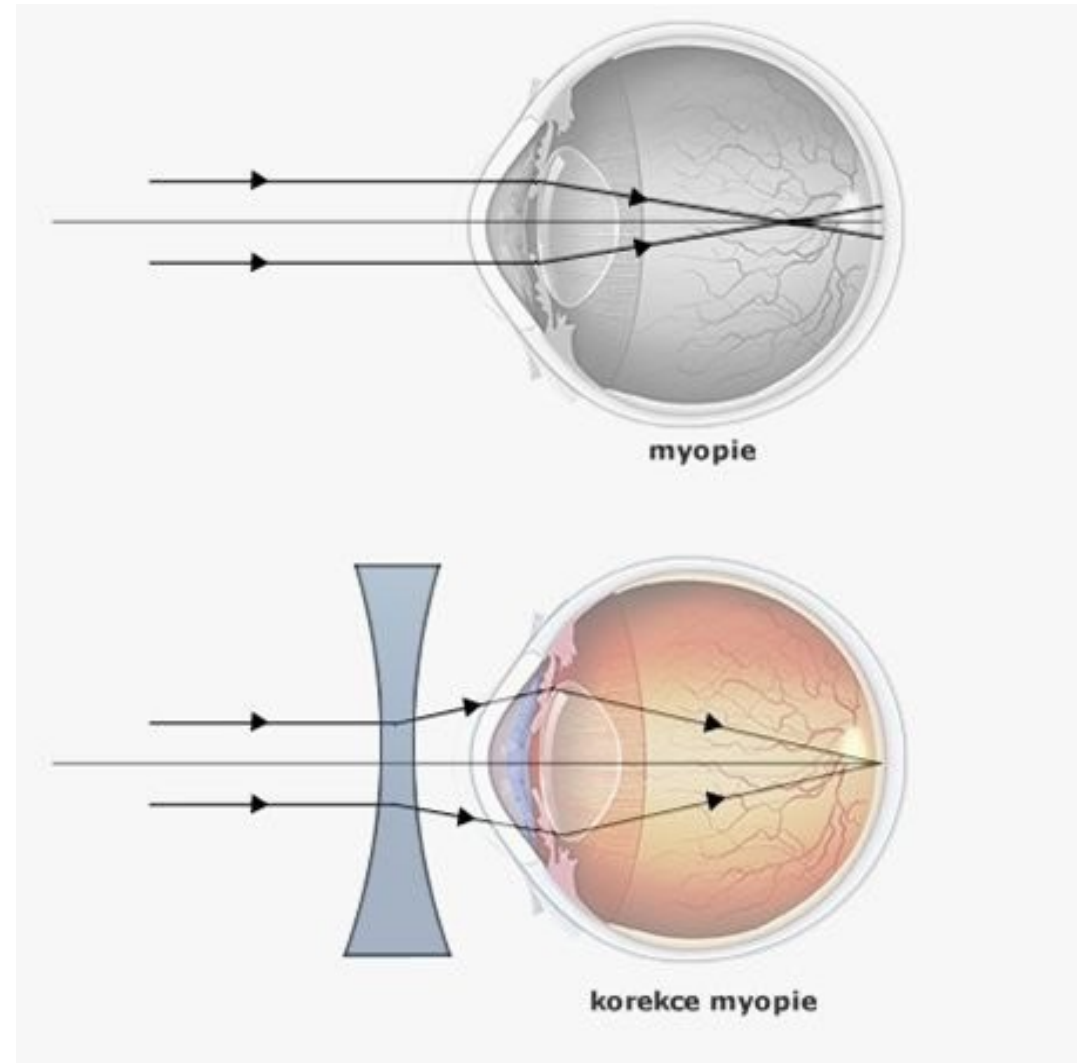
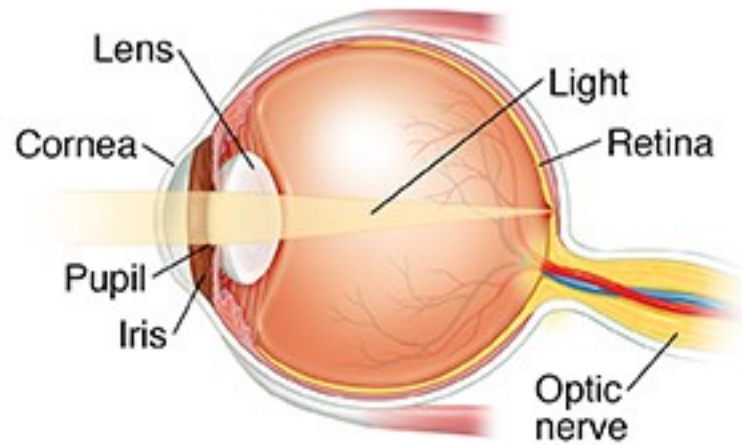


Pohled na vzdálený předmět

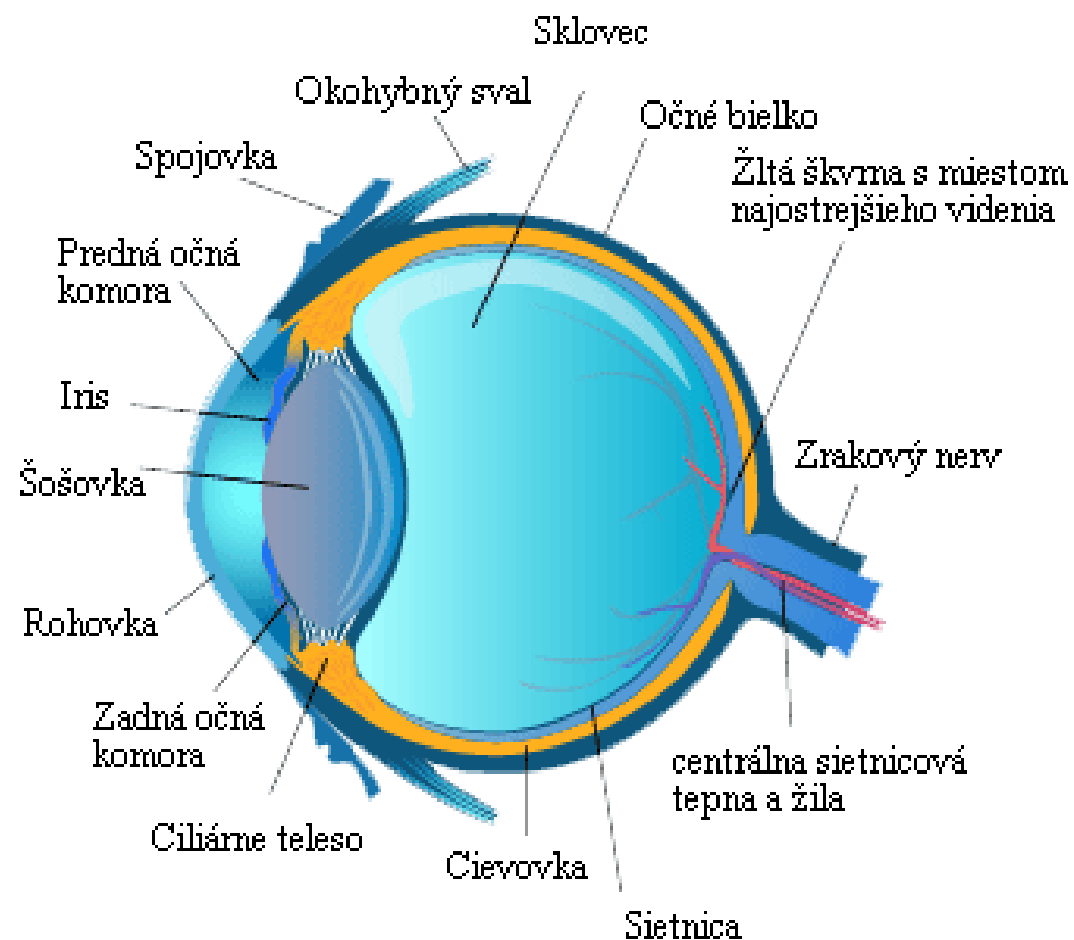


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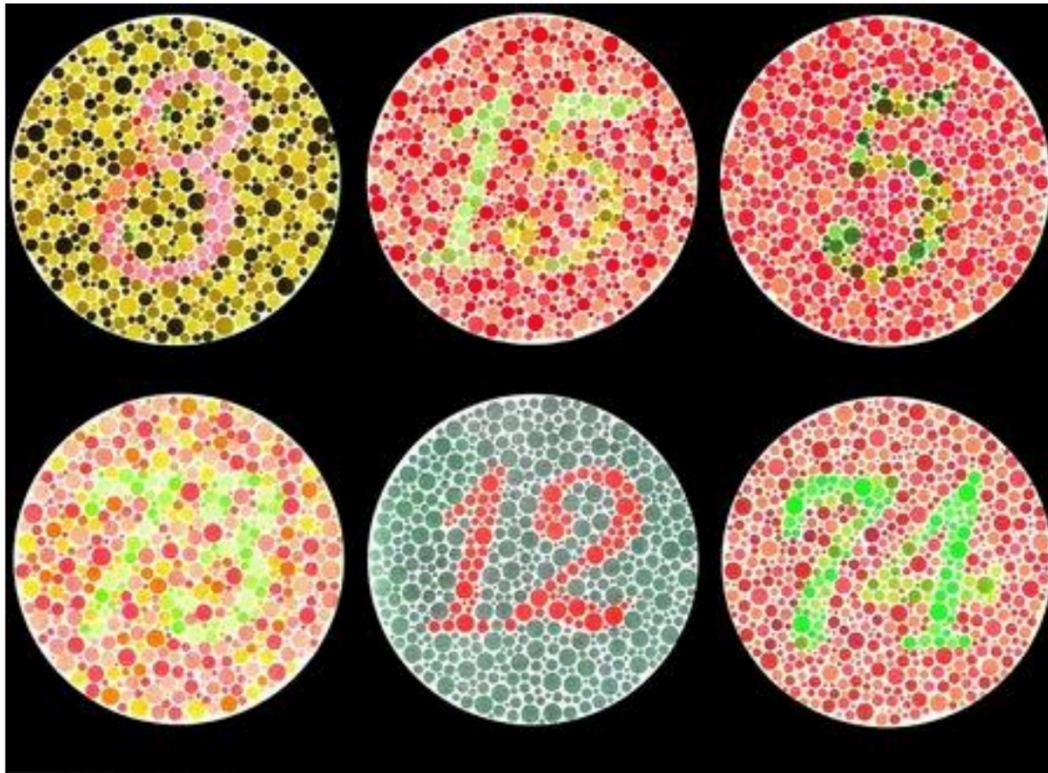
Refrakční vady



Komorový systém oka



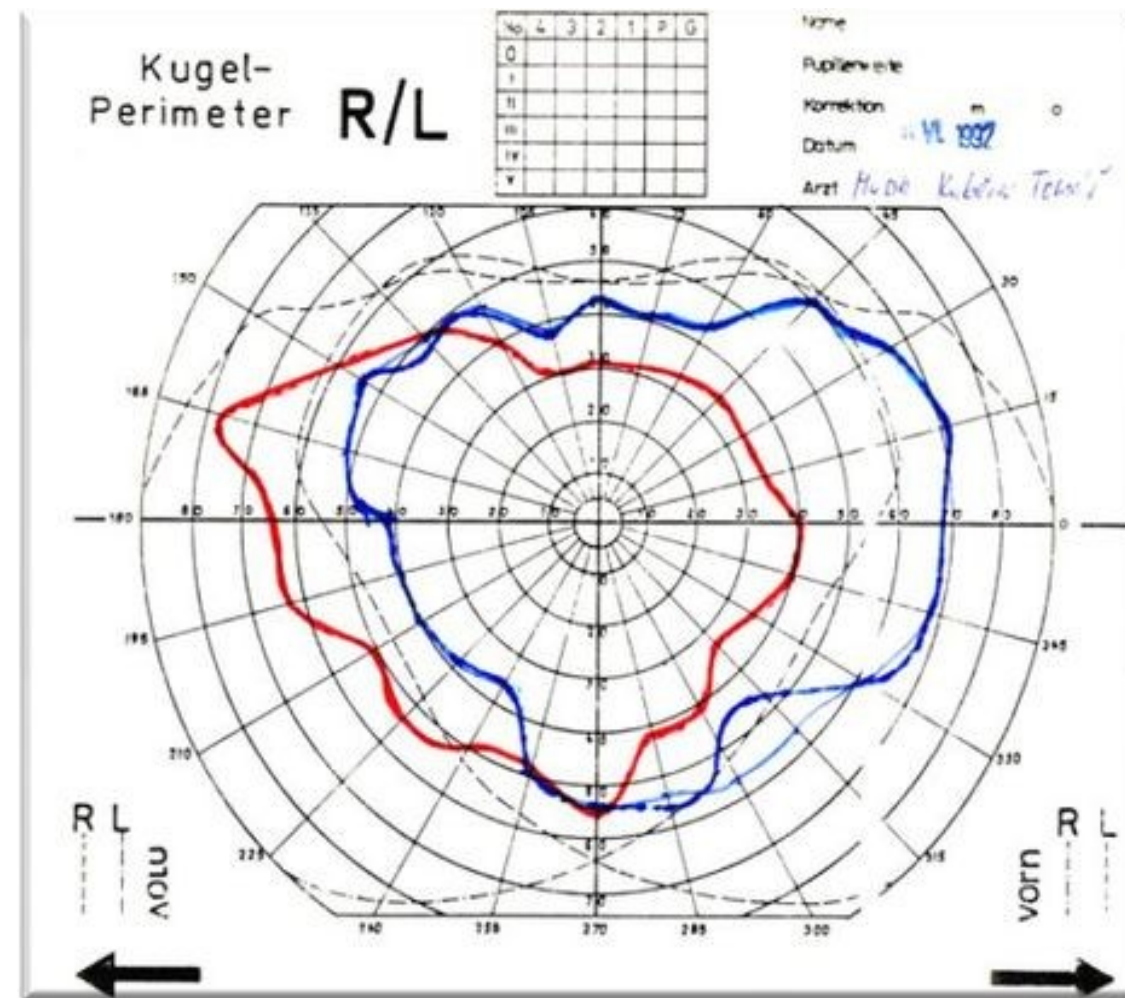
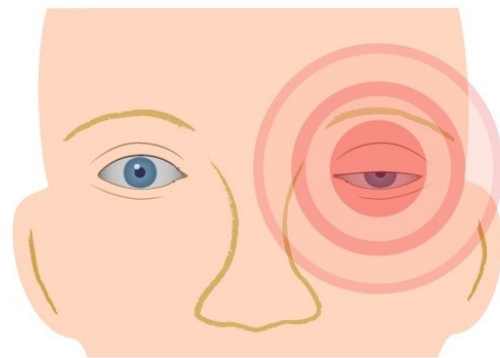
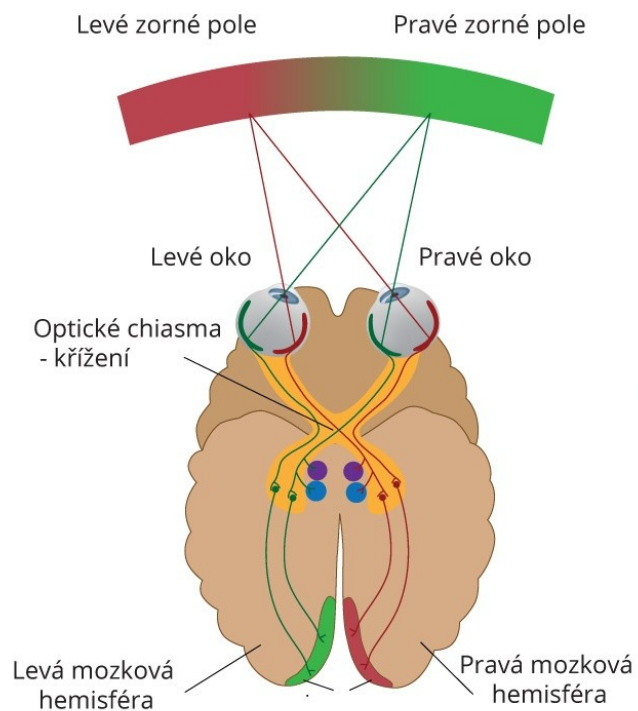
Daltonismus



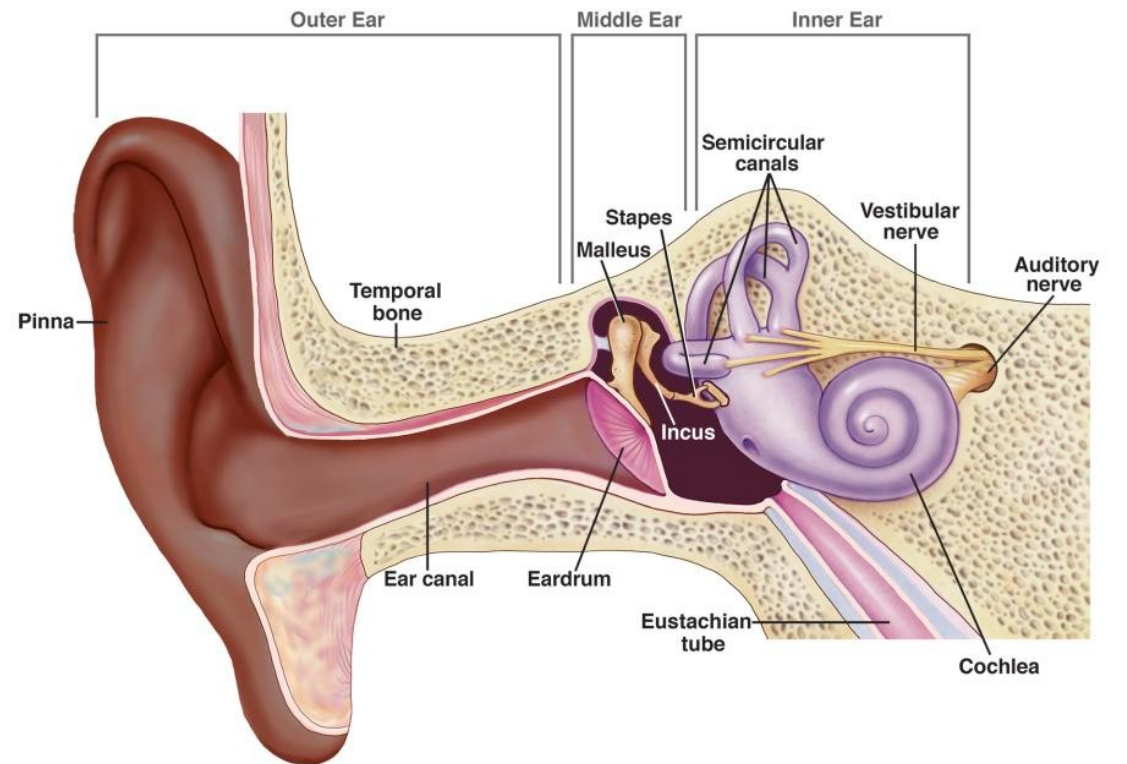
- <https://cs.wikipedia.org/wiki/Bavoslepost>
- Protanopie č
- Deuteranopie z
- Tritanopie m

Zorné pole, výpadky (skotomy)

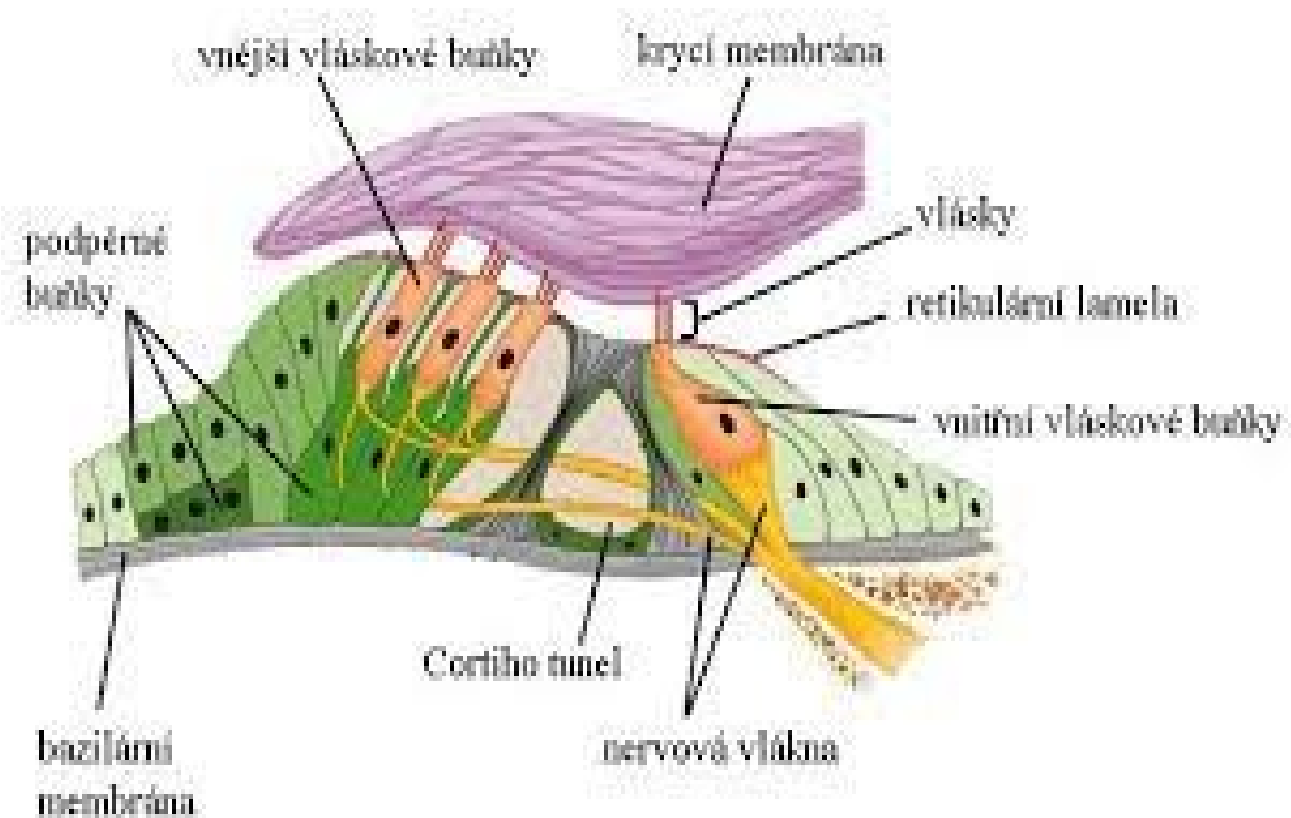
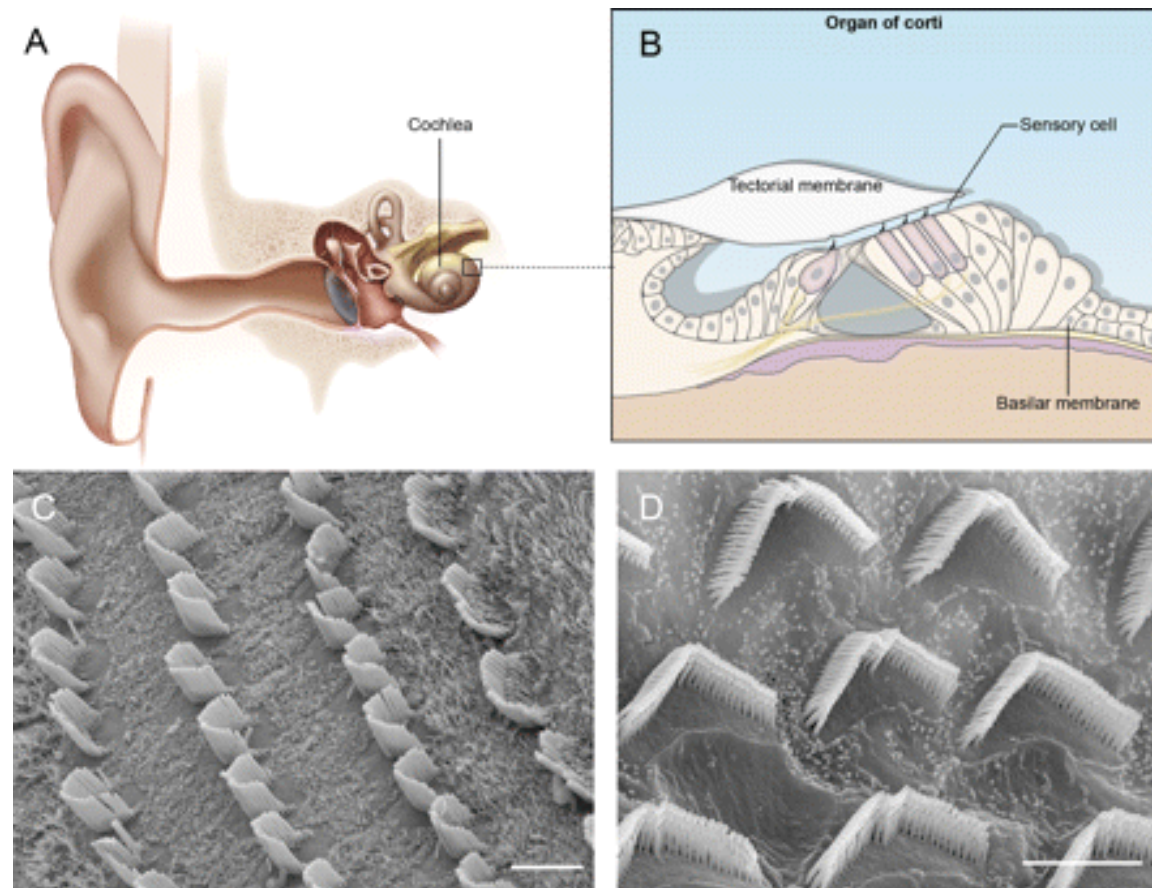
Výpadek zorného pole (skotom)



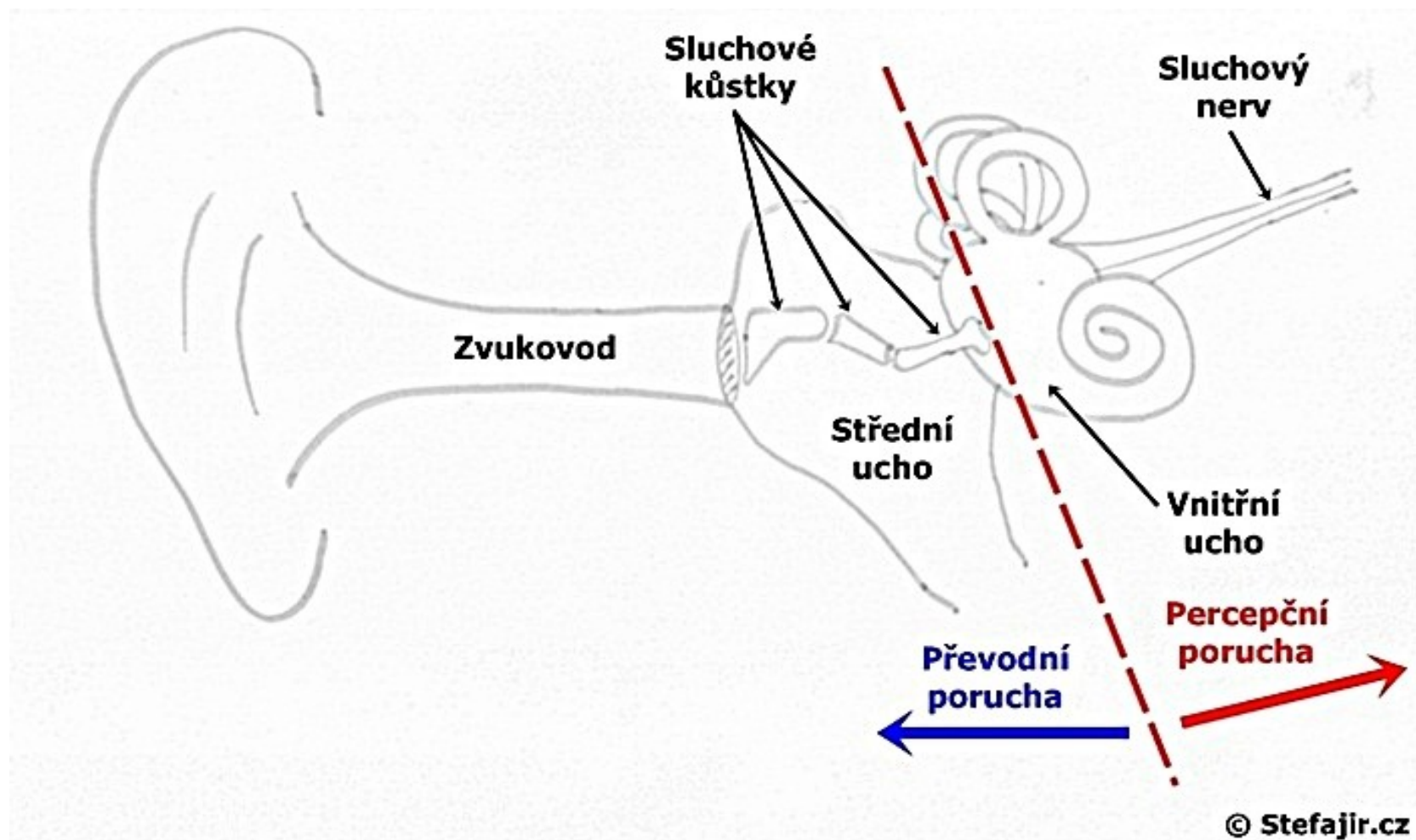
Ucho, lat. auris



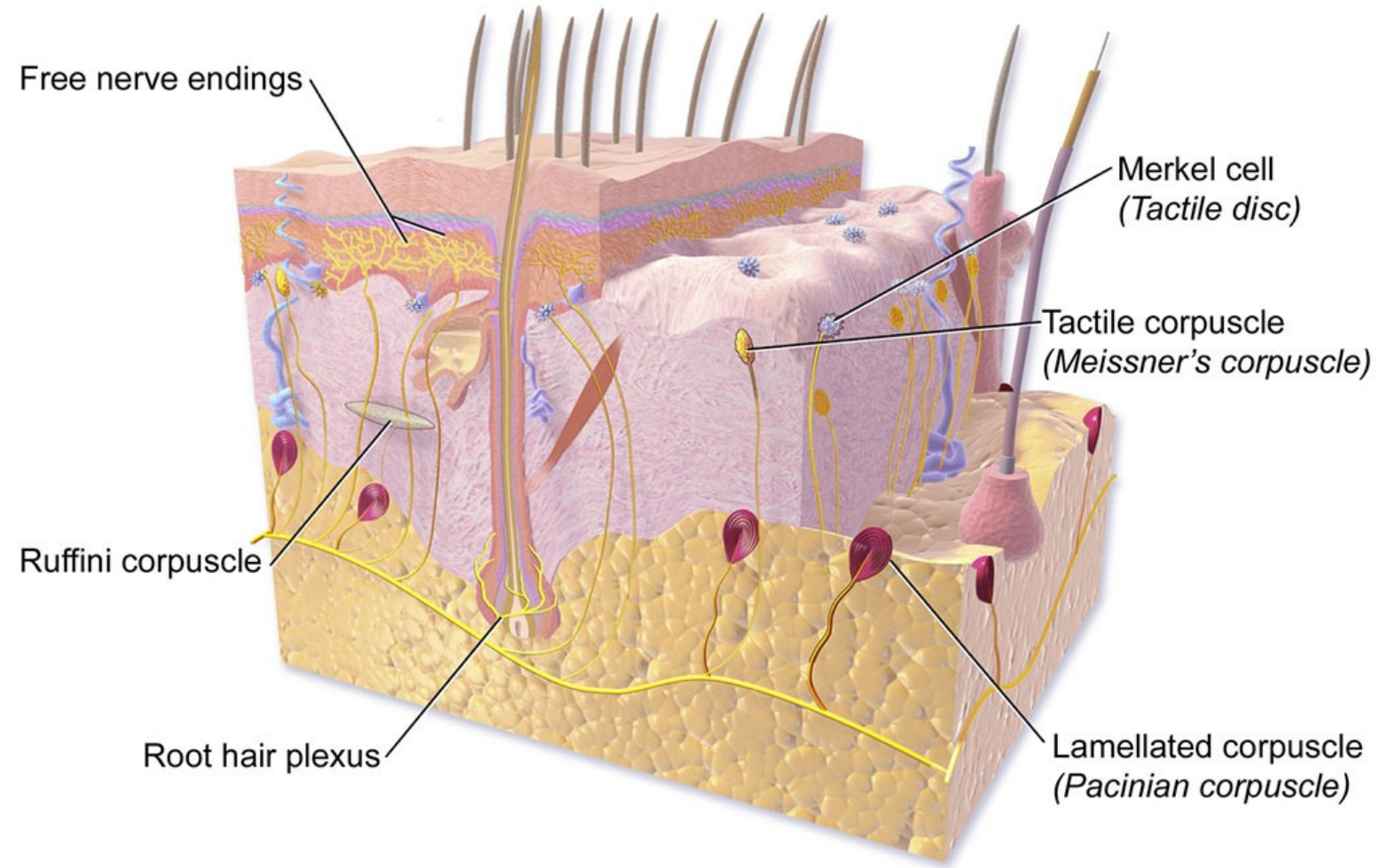
Sluch



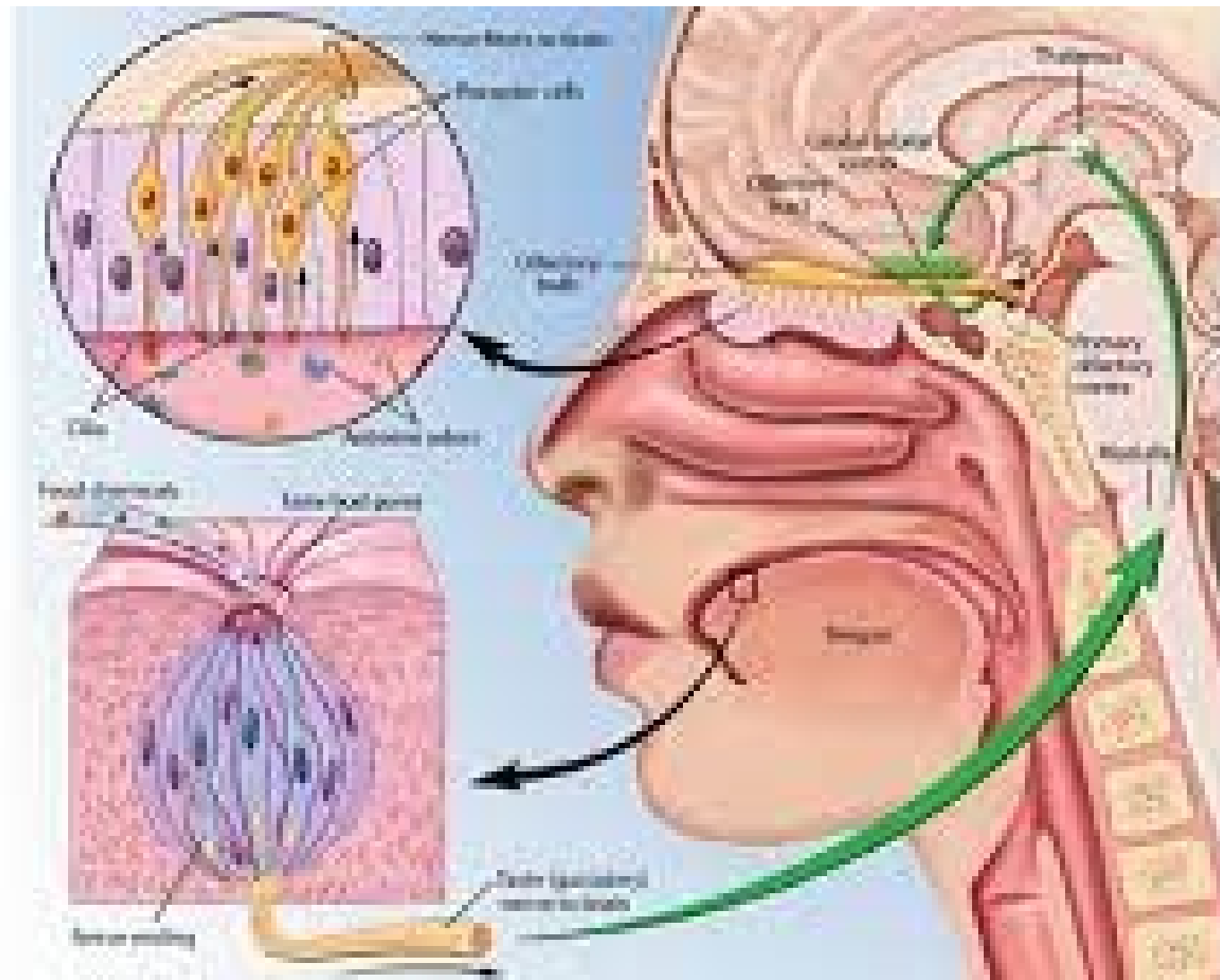
Poruchy sluchu



Hmat



Čich



Chut'

