

AUTONOMIC NERVOUS SYSTEM

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AUTONOMIC NERVOUS SYSTEM

FUNCTION:

phylogenetically the oldest part of NS, control smooth muscles, glands, heart

FUNCTIONAL DIVISIONS:

Parasympathetic – anabolic reactions (store the energy)

Sympathetic – catabolic function (release the energy)

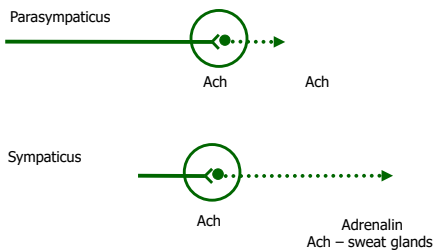
Enteric system

Sympathetic = fight or flight Catabolic reaction

- coronary arteries - vasodilation
 - ↑ heart rate, blood pressure
 - bronchodilation
 - mydriasis
 - sweat secretion
 - ↑ glykemia
- Generalised reaction of the body

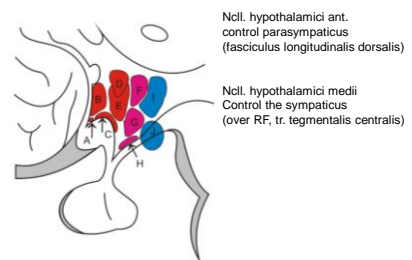
Parasympathetic = Anabolic reaction

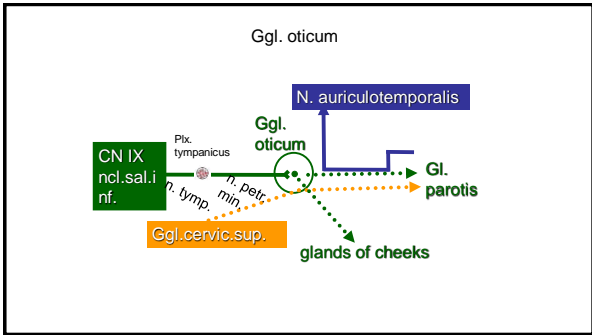
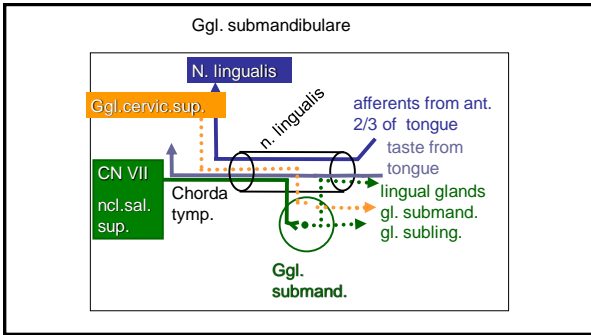
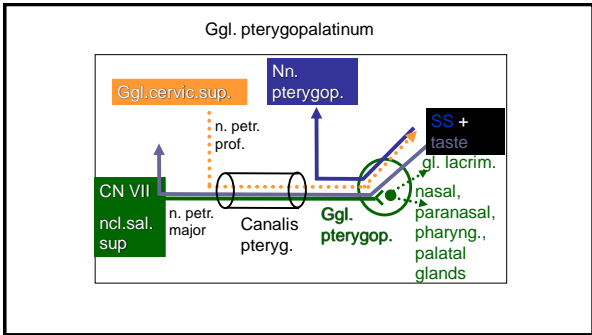
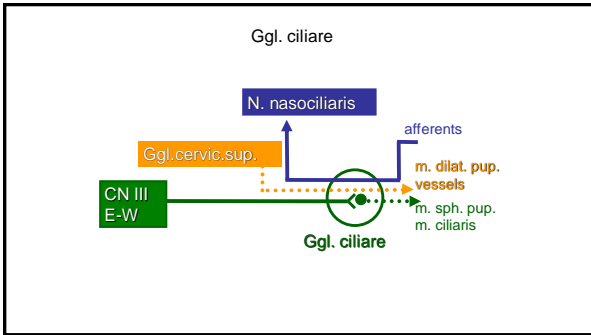
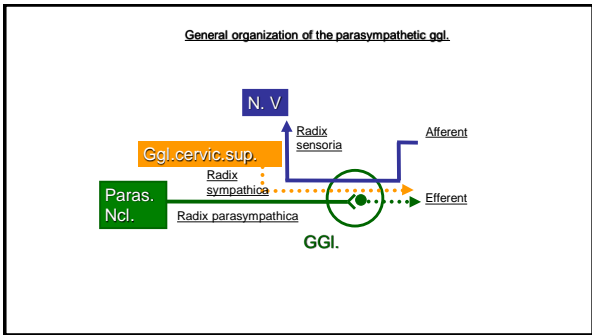
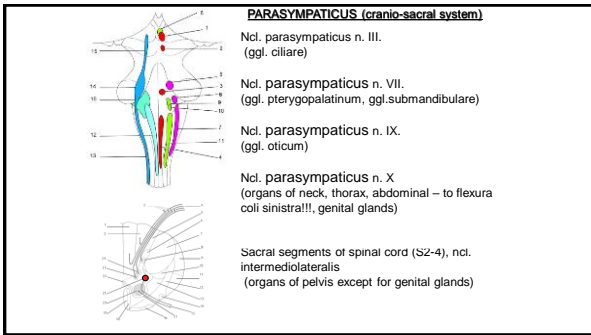
- ↓ heart rate, blood pressure
 - bronchoconstriction
 - GIT activation
 - miosis
- Localized reaction

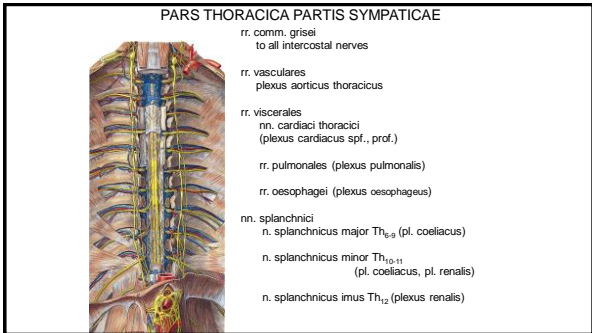
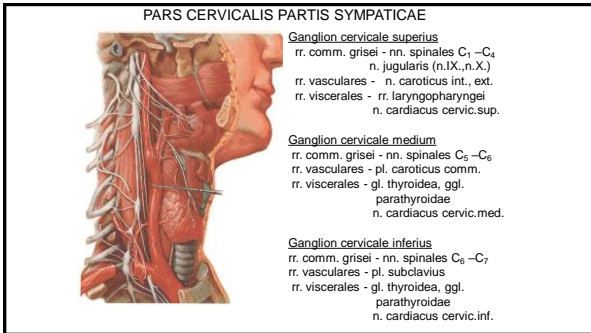
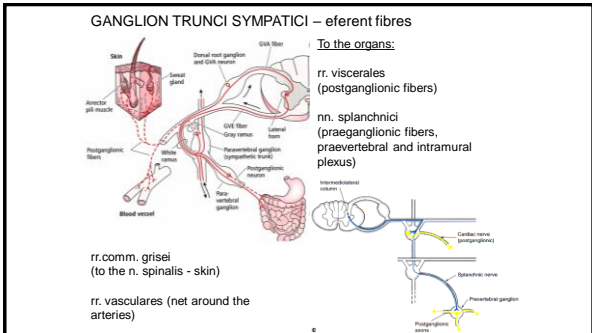
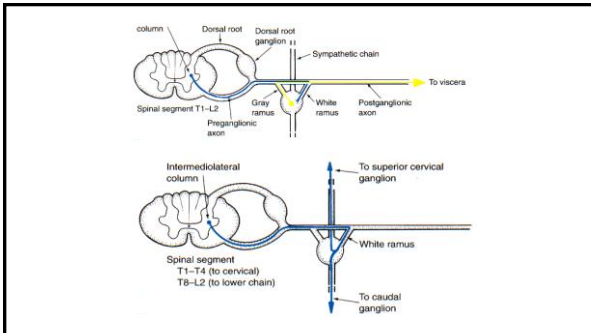
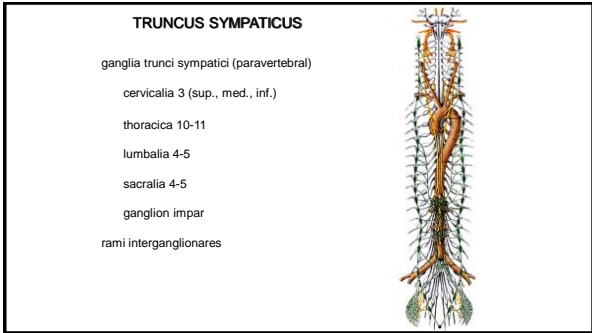
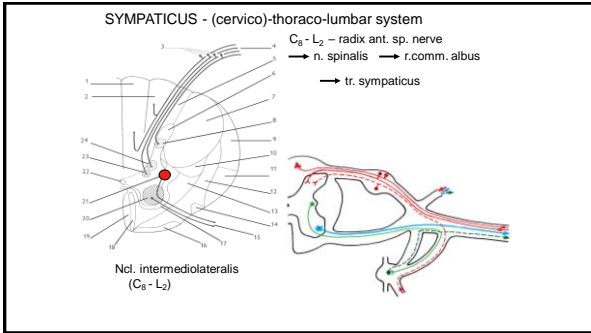


CENTRAL PART OF AUTONOMIC NERVOUS SYSTEM

Hypothalamus (subsystem of limbic brain = visceral brain)







PARS ABDOMINALIS ET PELVINA PARTIS SYMPATICAE



rr. comm. grisei
to all spinal nerves from L, S
and Co segments

nn. splanchnici lumbales
(to plexus aorticus abdominalis)

nn. splanchnici sacrales
(to plexus hypogastricus)



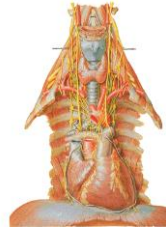
PRAEVERTEBRAL PLEXUSES – THORAX

Plexus cardiacus spf., prof.

Plexus aorticus thoracicus

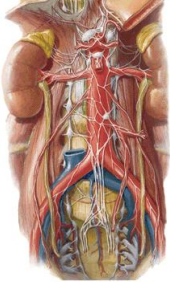
Plexus pulmonalis

Plexus oesophageus



PRAEVERTEBRAL PLEXUSES – ABDOMINAL CAVITY

Plexus aorticus abdominalis



Plexus coeliacus
(ggl coeliacum dx. sin.)
plexus gastrici
plexus lienalis
plexus hepaticus
plexus duodenalis
plexus pancreaticus

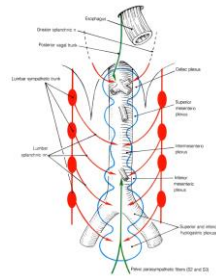
Plexus mesentericus superior

Plexus mesentericus inferior

Plexus renalis et suprarenalis
(plexus uretericus)

Plexus testicularis (ovaricus)

Plexus iliaci (plexus femoralis)



Praevertebralia ganglia

Coeliacum dx. et sin.
Mesentericum sup.
Aorticorenale
Mesentericum inf.

PRAEVERTEBRAL PLEXUSES – PELVIS



Plexus hypogastricus superior
(n. praesacralis)

Plexus hypogastricus dx. a sin.

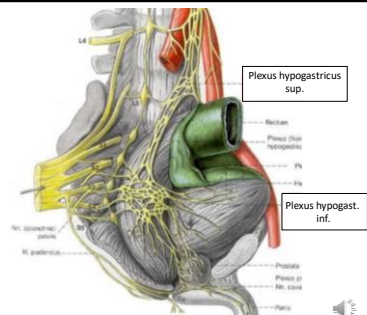
Plexus hypogastricus inf.

plexus vesicalis

plexus prostaticus

plexus uterovaginalis

plexus rectalis



Plexus hypogastricus
sup.

Plexus hypogast.
inf.

Enteric system

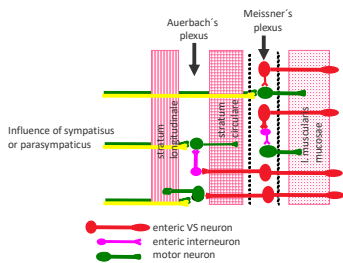
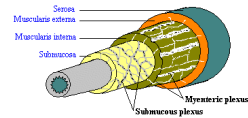
- relatively independent (contraction of smooth muscles of the GIT tube and secretory activity of intramural glands)

- neurons and interneurons in the GIT wall; ganglia

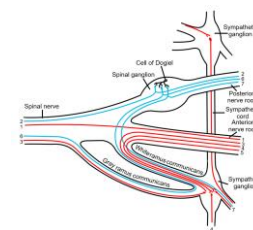
Plex myentericus
(Auerbach)
Plex submucosus
(Meissneri)



- ganglia receive signals 1) from receptors in the intestinal wall
- 2) from CNS - symp. and parasymp. (modulation)
- information conducted on interneurons – activation or inhibition of motoneurons in the intestinal wall
- effectors: glands and smooth muscles in the intestinal wall



VISCEROSSENSATION



- VS fibers originate as:
- Mechanoreceptors - physiological impulses and pain (only symp.)
 - chemoreceptors - pO₂ (glomus caroticum)

References:

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