

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

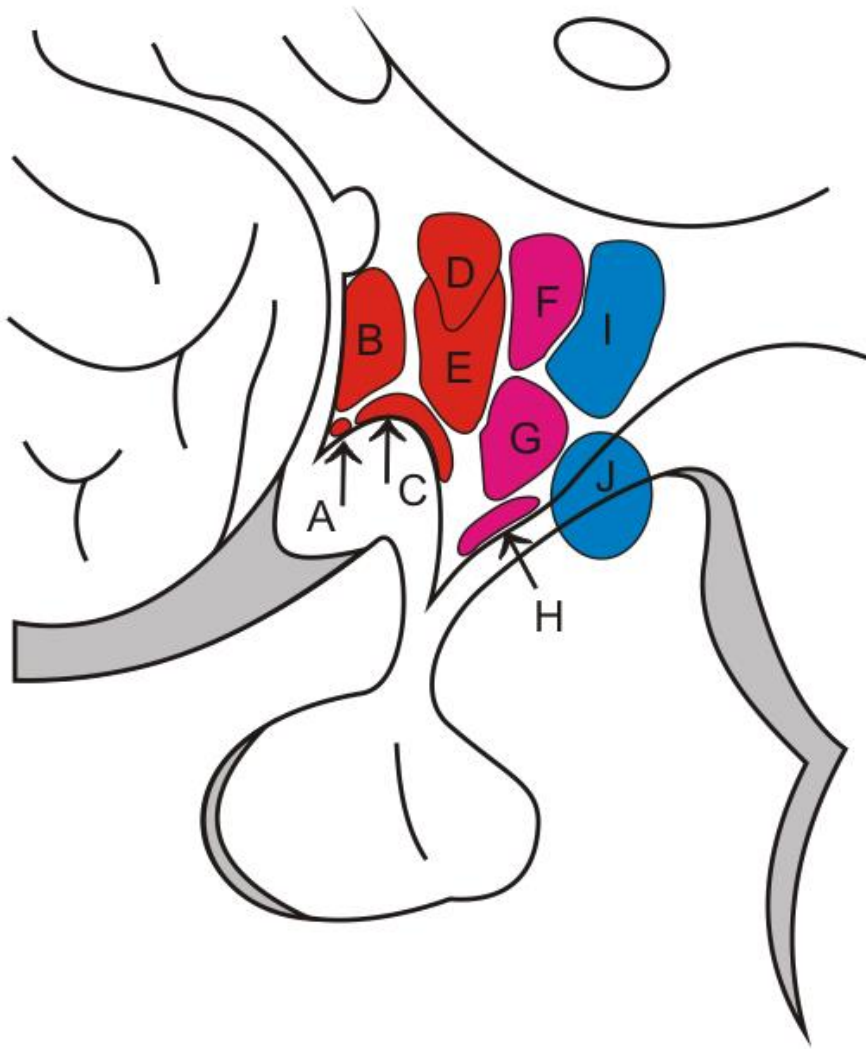
MORPHOLOGICAL DIVISIONS:

Central

Peripheral

CENTRAL PART OF AUTONOMIC NERVOUS SYSTEM

Hypothalamus (subsystem of limbic brain = visceral brain)



Ncll. hypothalamici ant.
control **parasympaticus**
(fasciculus longitudinalis dorsalis)

Ncll. hypothalamici medii
Control the **sympaticus**
(over RF, tr. tegmentalis centralis)

PARASYMPATICUS (cranio-sacral system)

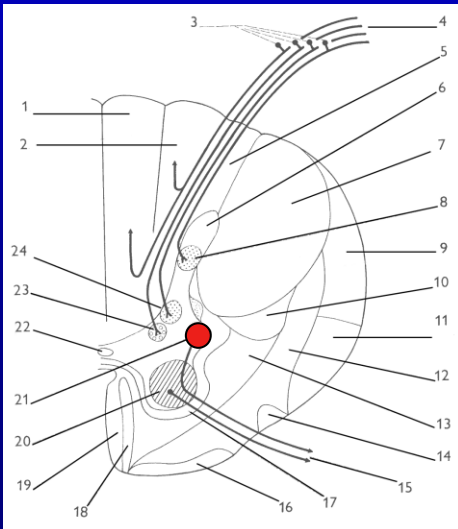
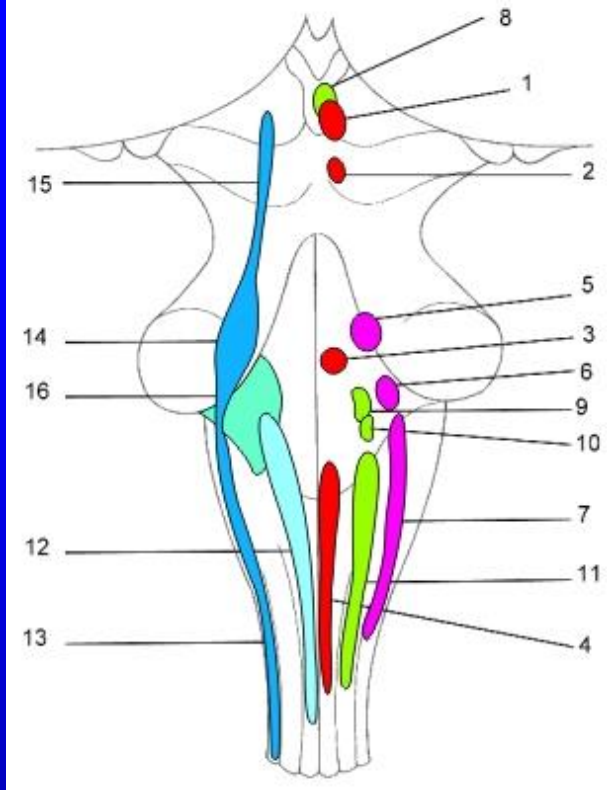
Ncl. parasympaticus n. III.
(ggl. ciliare)

Ncl. parasympaticus n. VII.
(ggl. pterygopalatinum, ggl.submandibulare)

Ncl. parasympaticus n. IX.
(ggl. oticum)

Ncl. parasympaticus n. X
(organs of neck, thorax, abdominal – until
flexura coli sinistra!!!, genital glands)

**Sacral segments of spinal cord (S2-4), ncl.
intermediolateralis**
(organs of pelvis except of genital glands)



Ggl. ciliare

N. nasociliaris

Ggl. cervic. sup.

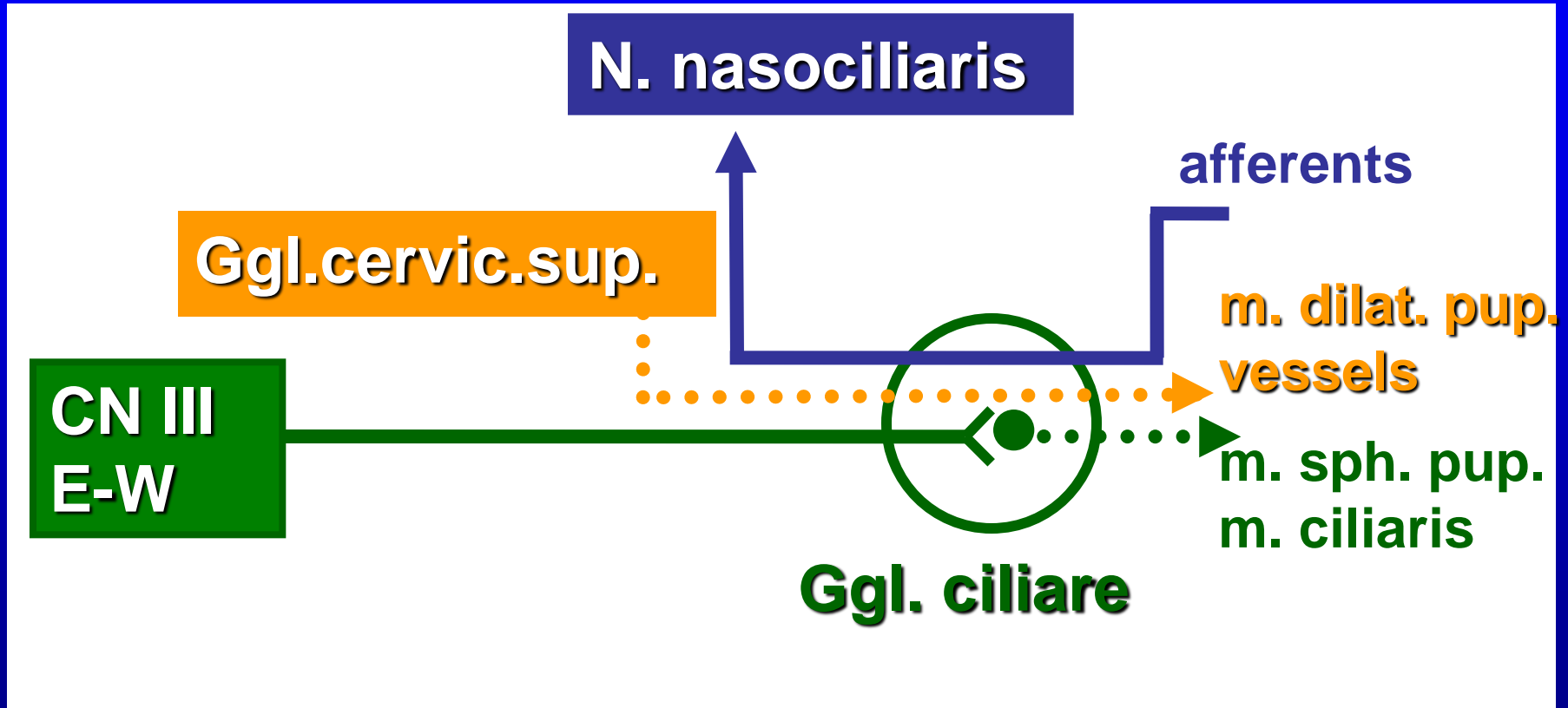
CN III
E-W

afferents

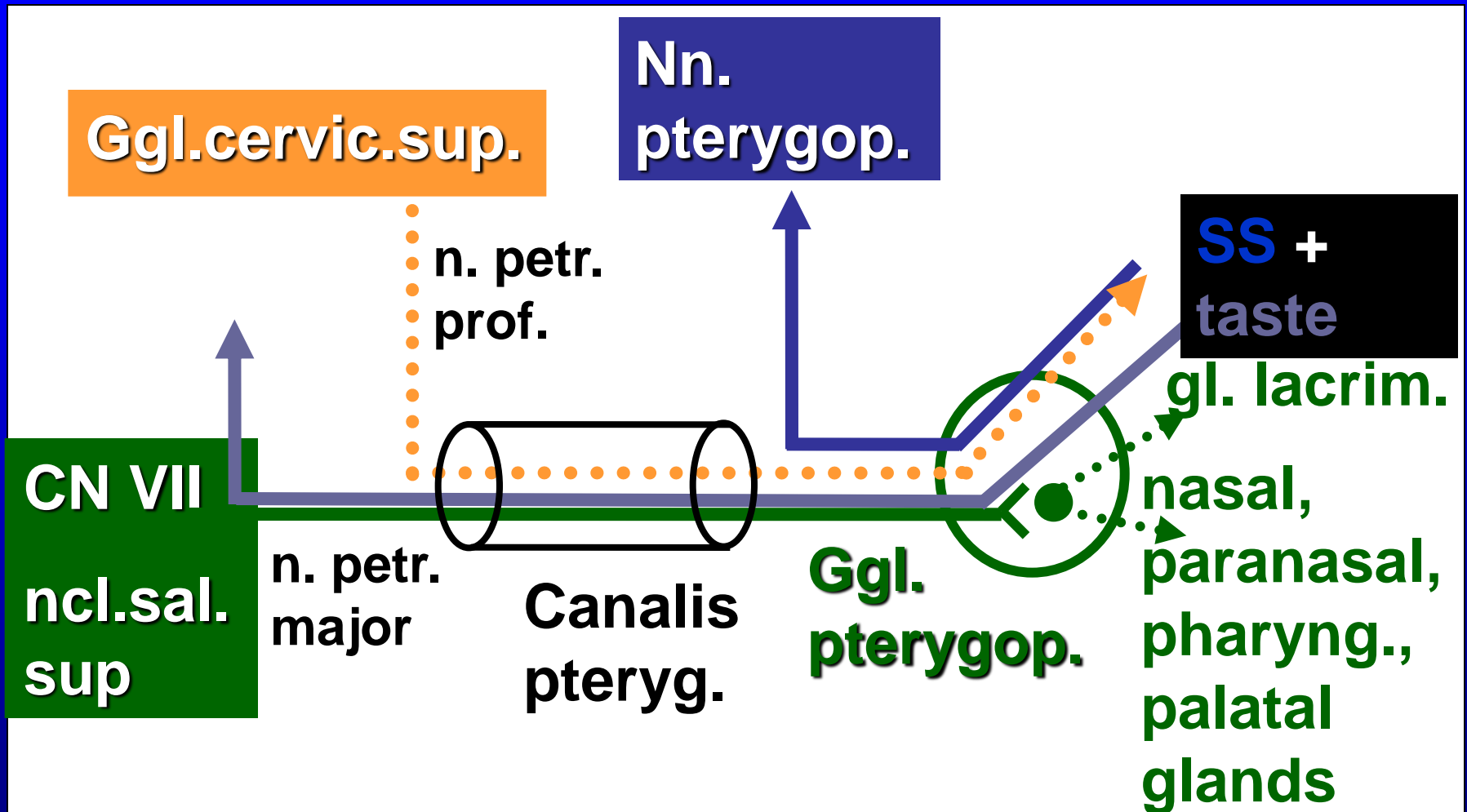
m. dilat. pup.
vessels

m. sph. pup.
m. ciliaris

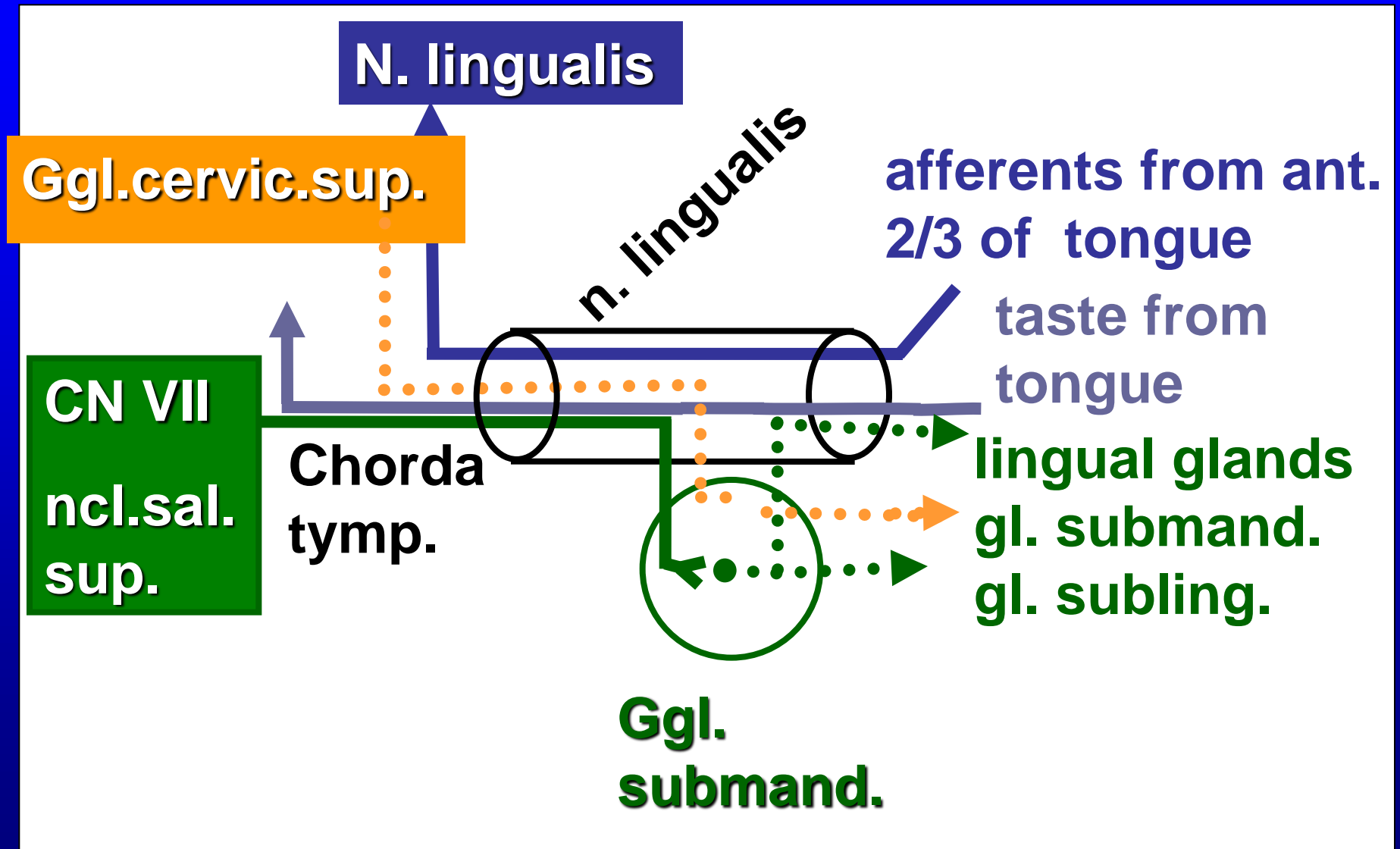
Ggl. ciliare



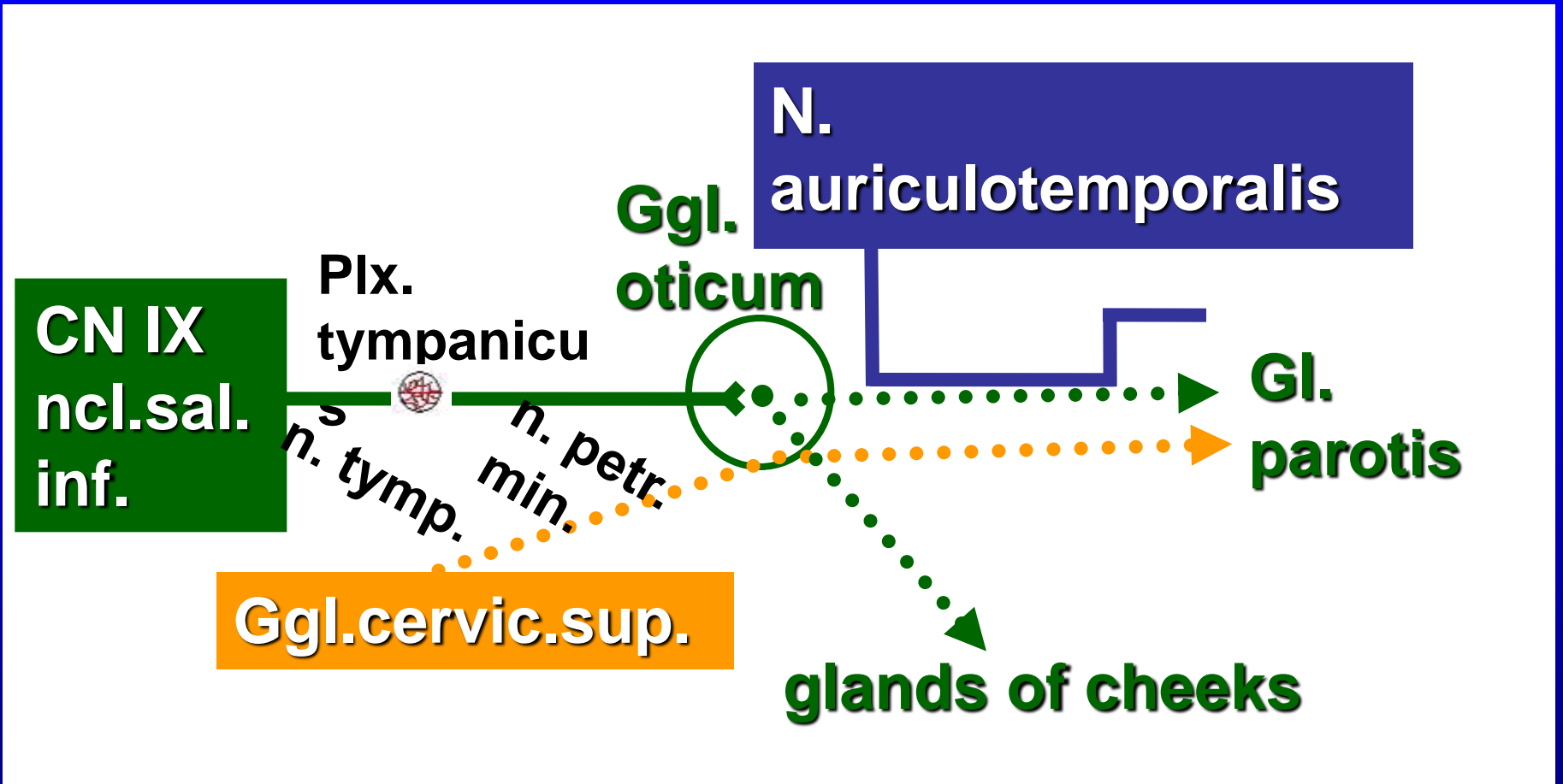
Ggl. pterygopalatinum



Ggl. submandibulare



Ggl. oticum



TRUNCUS SYMPATICUS

ganglia trunci sympatici (paravertebral)

cervicalia 3 (sup., med., inf.)

thoracica 10-11

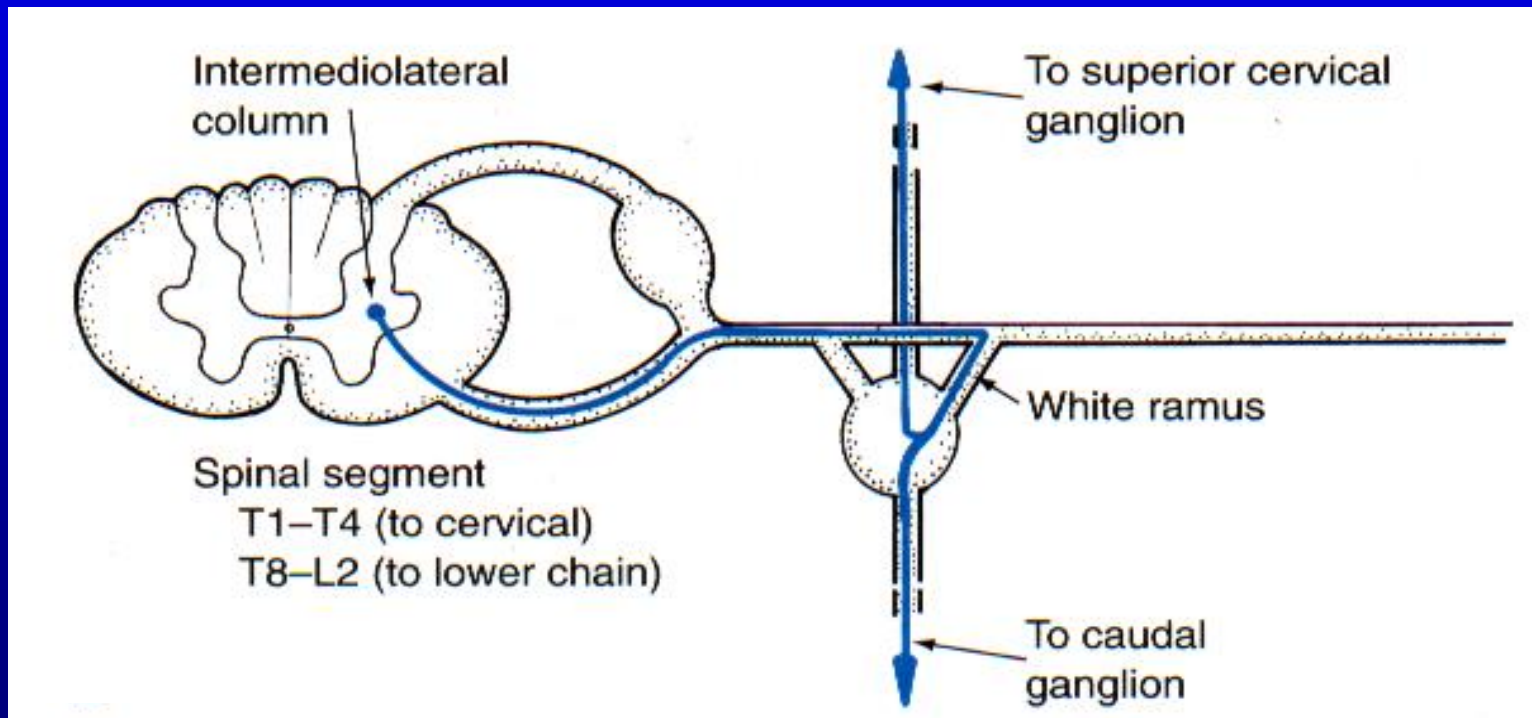
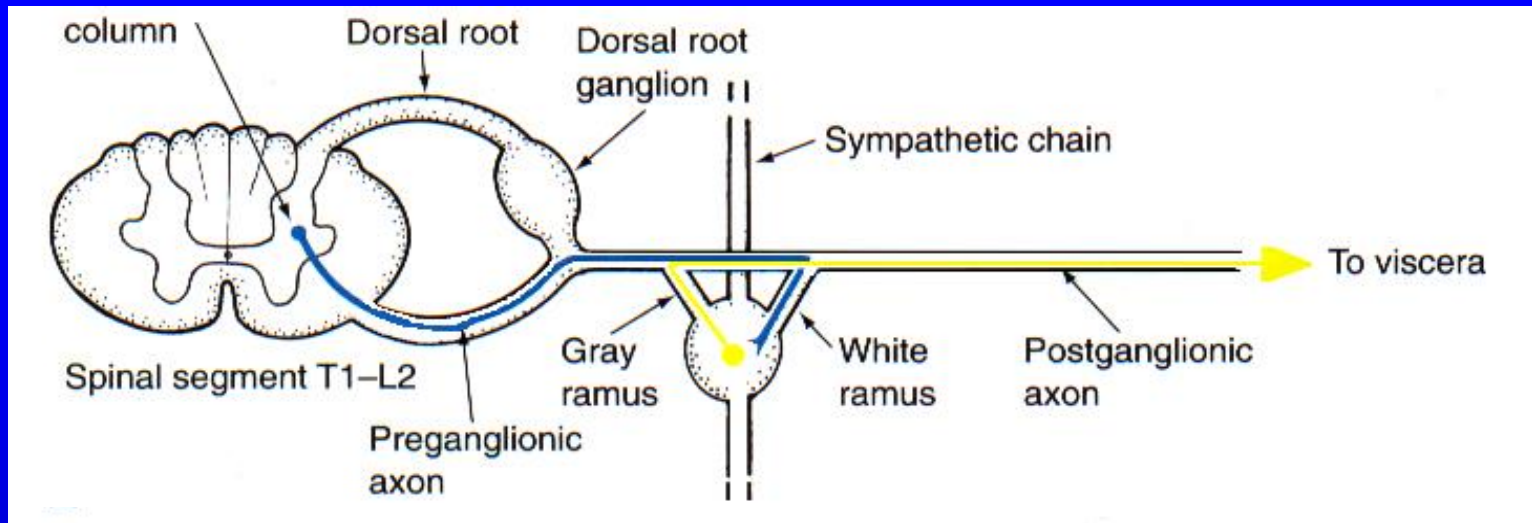
lumbalia 4-5

sacralia 4-5

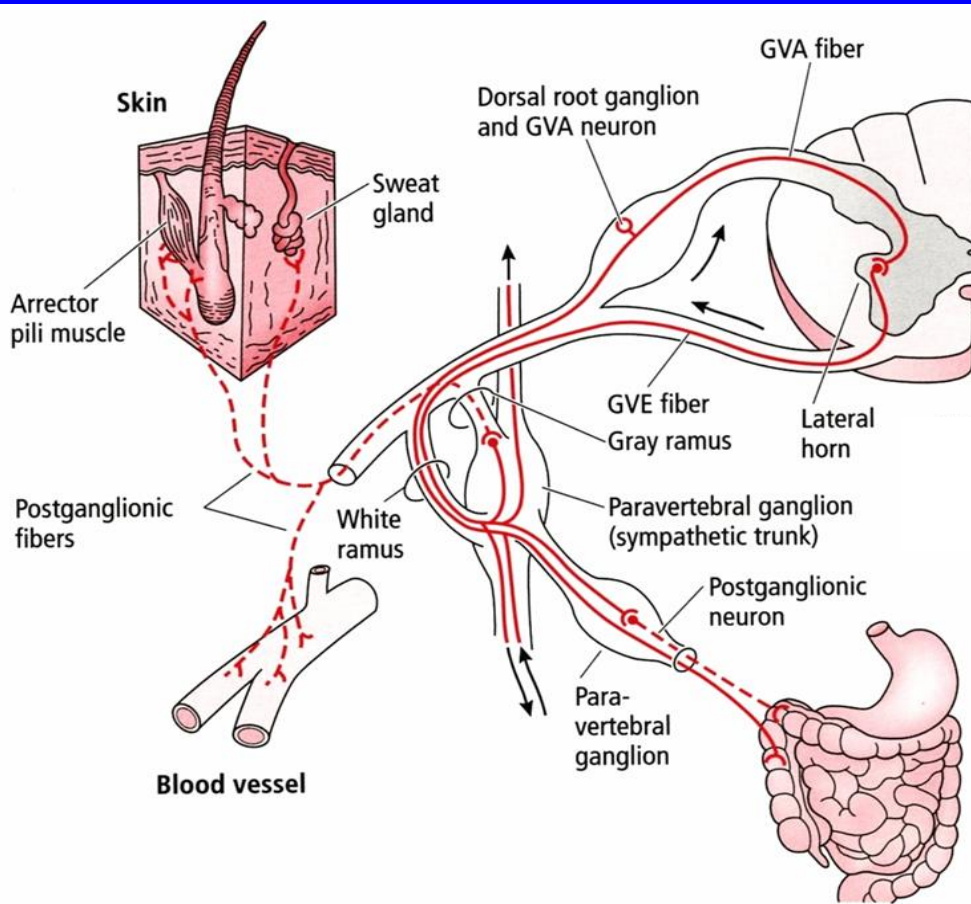
ganglion impar

rami interganglionares





GANGLION TRUNCI SYMPATICI – efferent fibres



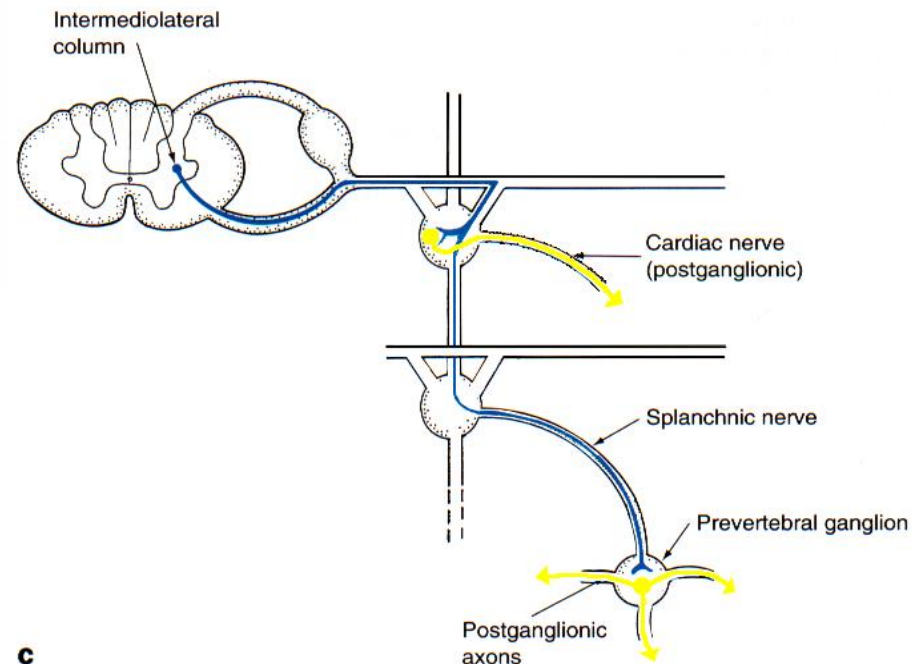
To the organs:

rr. viscerales
(postganglionic fibres)

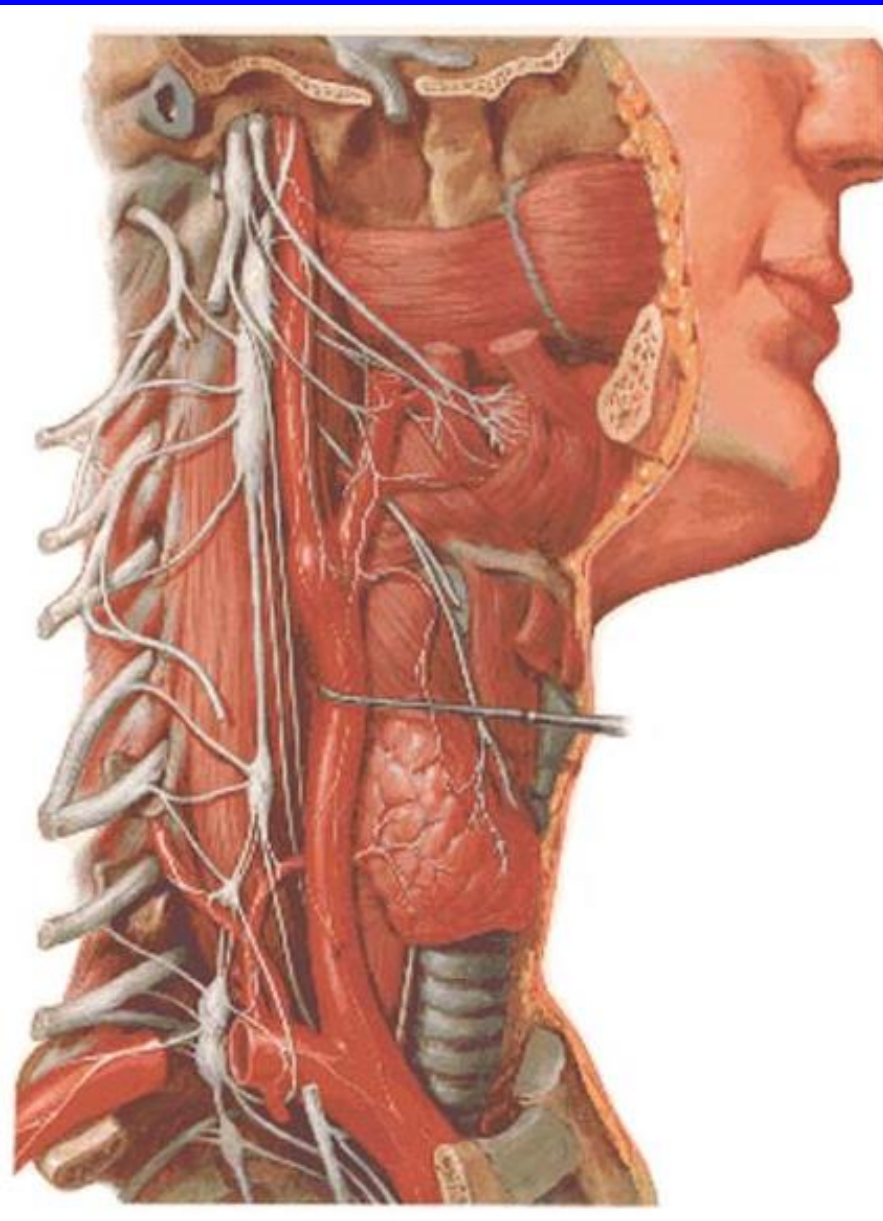
nn. splanchnici
(praeganglionic fibres,
praevertebral and intramural
plexus)

rr.comm. grisei
(to the n. spinalis - skin)

rr. vasculares (net around the
arteries)



PARS CERVICALIS PARTIS SYMPATICAE



Ganglion cervicale superius

- rr. comm. grisei - nn. spinales C₁ –C₄
- n. jugularis (n.IX.,n.X.)
- rr. vasculares - n. caroticus int., ext.
- rr. viscerales - rr. laryngopharyngei
- n. cardiacus cervic.sup.

Ganglion cervicale medium

- rr. comm. grisei - nn. spinales C₅ –C₆
- rr. vasculares - pl. caroticus comm.
- rr. viscerales - gl. thyroidea, ggl. parathyroidae
- n. cardiacus cervic.med.

Ganglion cervicale inferius

- rr. comm. grisei - nn. spinales C₆ –C₇
- rr. vasculares - pl. subclavius
- rr. viscerales - gl. thyroidea, ggl. parathyroidae
- n. cardiacus cervic.inf.

PARS THORACICA PARTIS SYMPATICAE



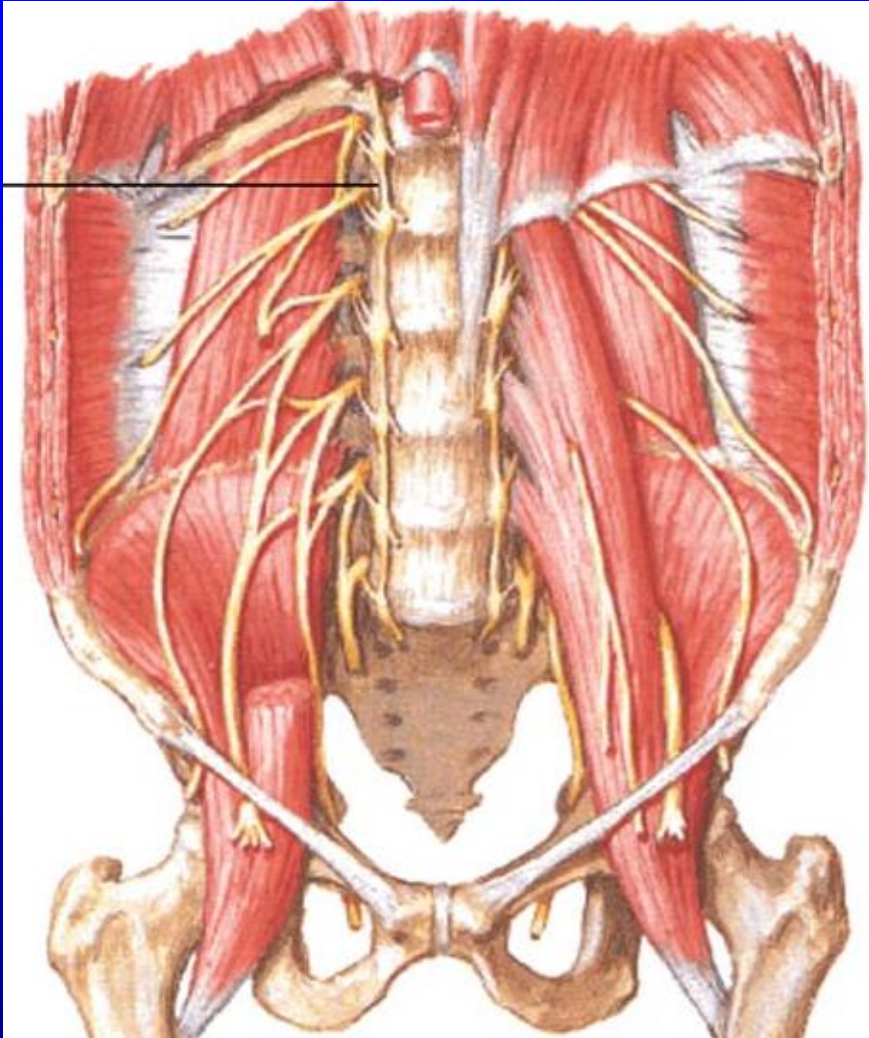
rr. comm. grisei
to all intercostal nerves

rr. vasculares
plexus aorticus thoracicus

rr. viscerales
nn. cardiaci thoracici
(plexus cardiacus spf., prof.)
rr. pulmonales (plexus pulmonalis)
rr. oesophagei (plexus oesophageus)

nn. splanchnici
n. splanchnicus major Th₆₋₉ (pl. coeliacus)
n. splanchnicus minor Th₁₀₋₁₁
(pl. coeliacus, pl. renalis)
n. splanchnicus imus Th₁₂ (plexus renalis)

PARS ABDOMINALIS ET PELVINA PARTIS SYMPATICAE



rr. comm. grisei

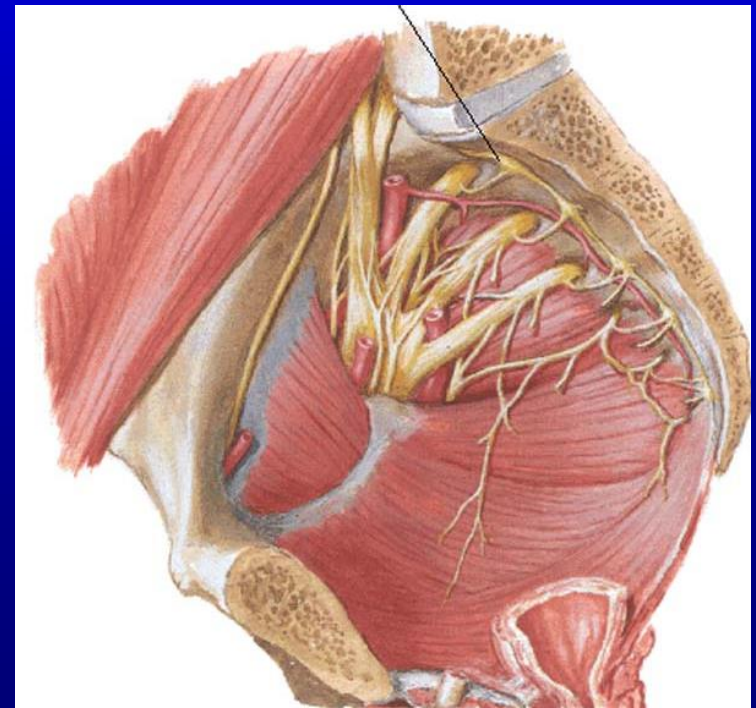
to all spinal nerves from L, S
and Co segments

nn. splanchnici lumbales

(to plexus aorticus abdominalis)

nn. splanchnici sacrales

(to plexus hypogastricus)



PRAEVERTEBRAL PLEXUSES – THORAX

Plexus cardiacus spf., prof.

Plexus pulmonalis

Plexus aorticus thoracicus

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

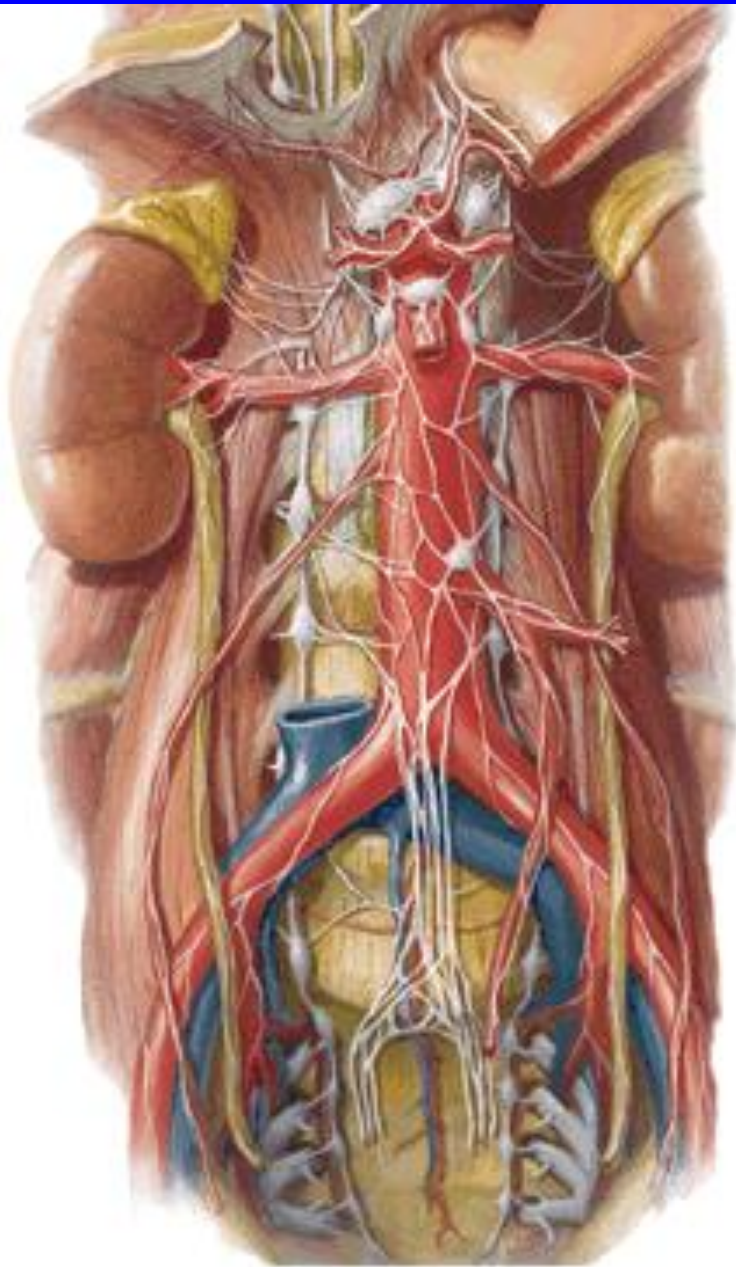
Plexus mesentericus superior

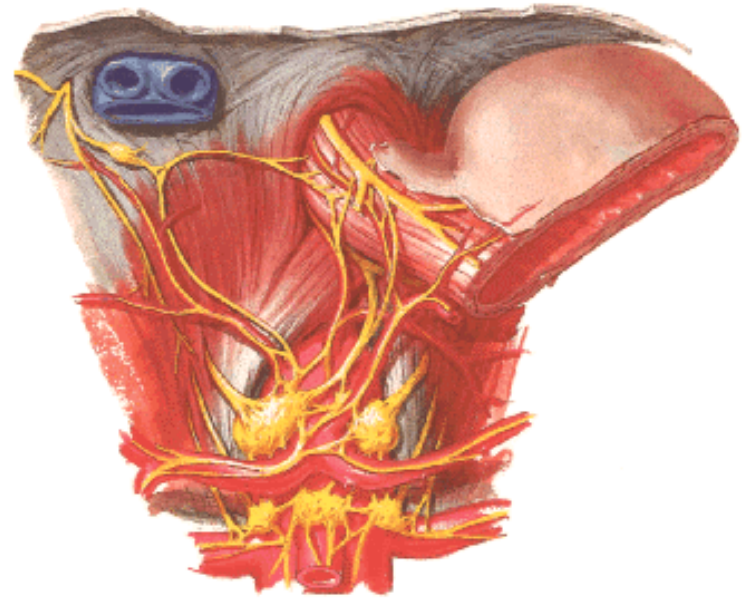
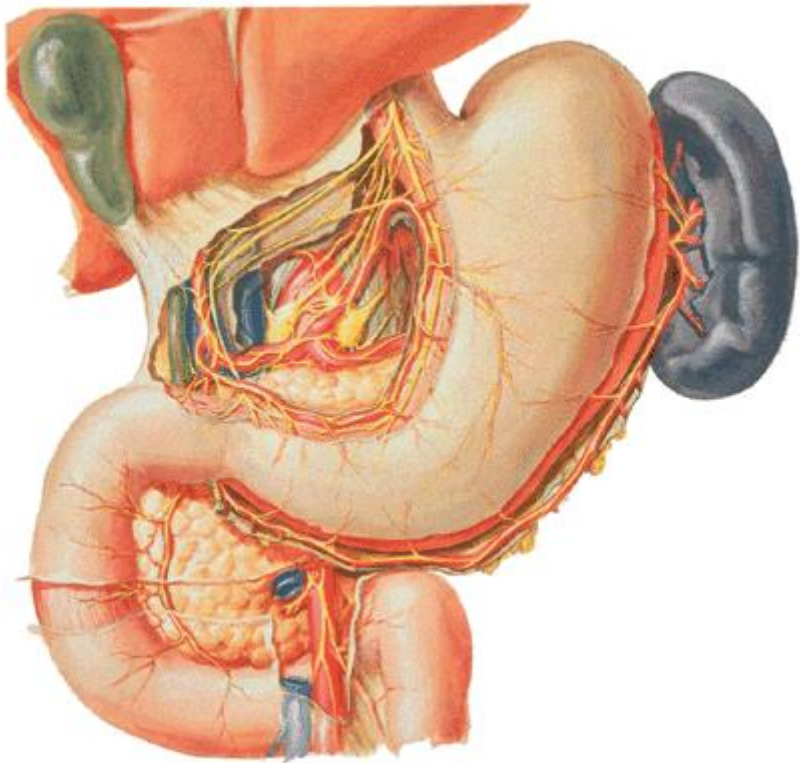
Plexus mesentericus inferior

**Plexus renalis et suprarenalis
(plexus uretericus)**

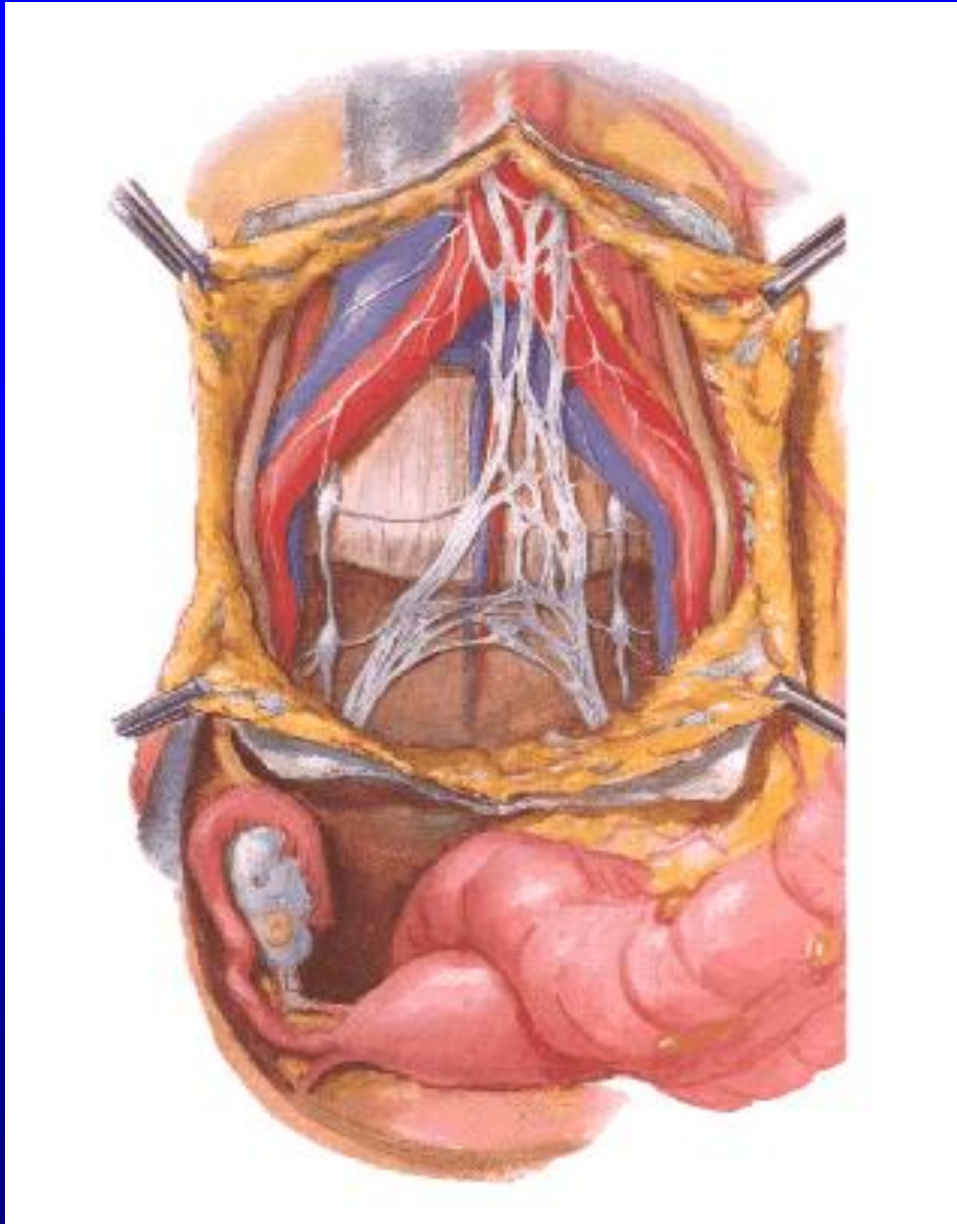
Plexus testicularis (ovaricus)

Plexus iliaci (plexus femoralis)





PRAEVERTEBRAL PLEXUSES – PELVIS

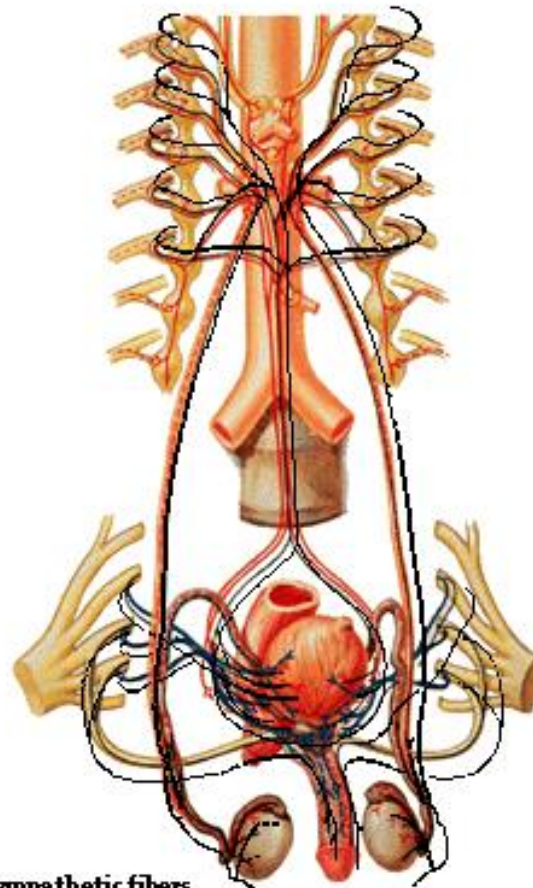


**Plexus hypogastricus superior
(n. praesacralis)**

Plexus hypogastricus dx. a sin.

Plexus hypogastricus inf.

Innervation of Male Reproductive Organs Schema



Sympathetic fibers
— Presynaptic

Parasympathetic fibers
— Presynaptic

F. N. N. N.