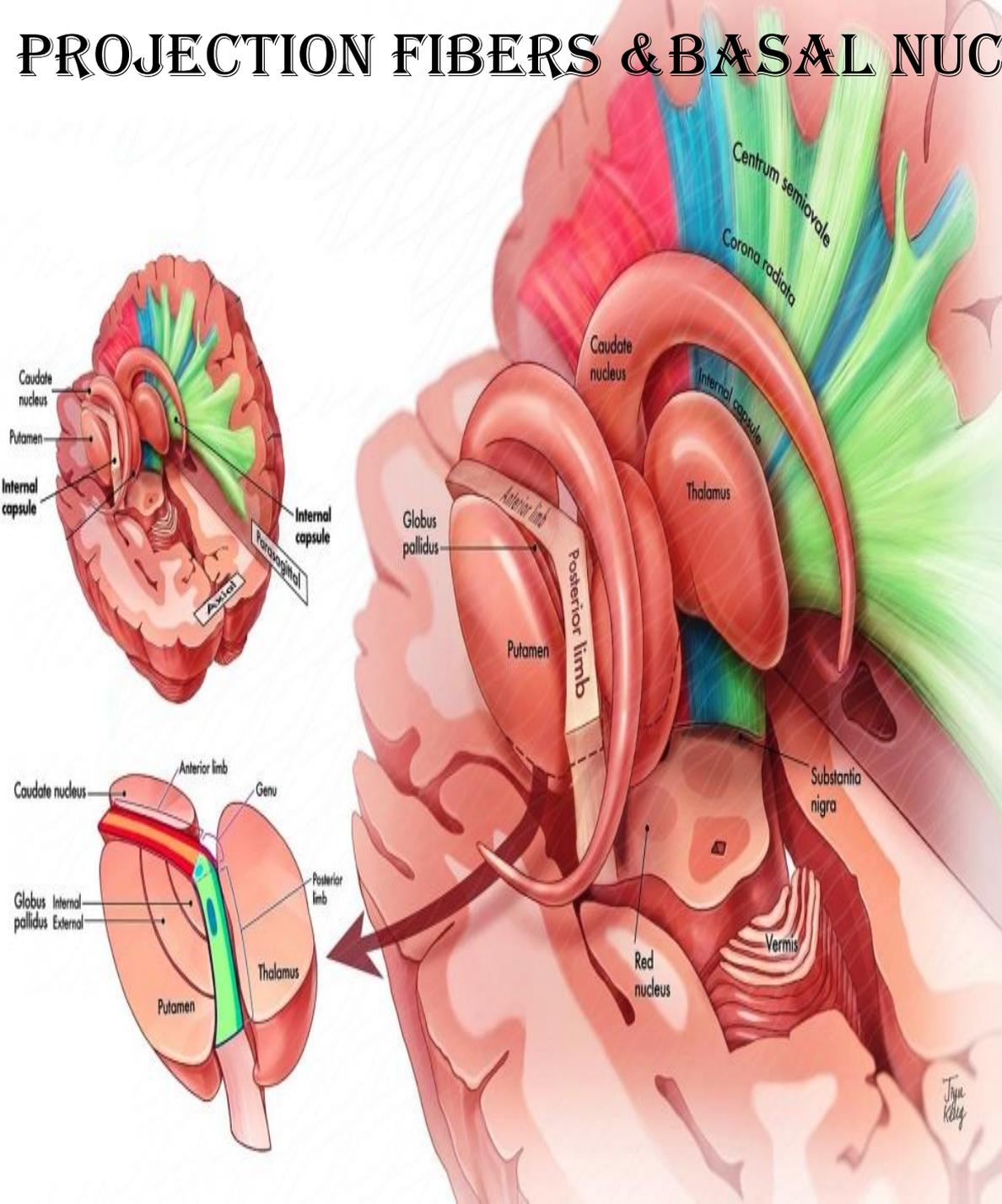


PROJECTION FIBERS & BASAL NUCLEI



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PROJECTION FIBERS

Def.:-afferent(ascending) and efferent (descending) fibers to and from cerebral cortex

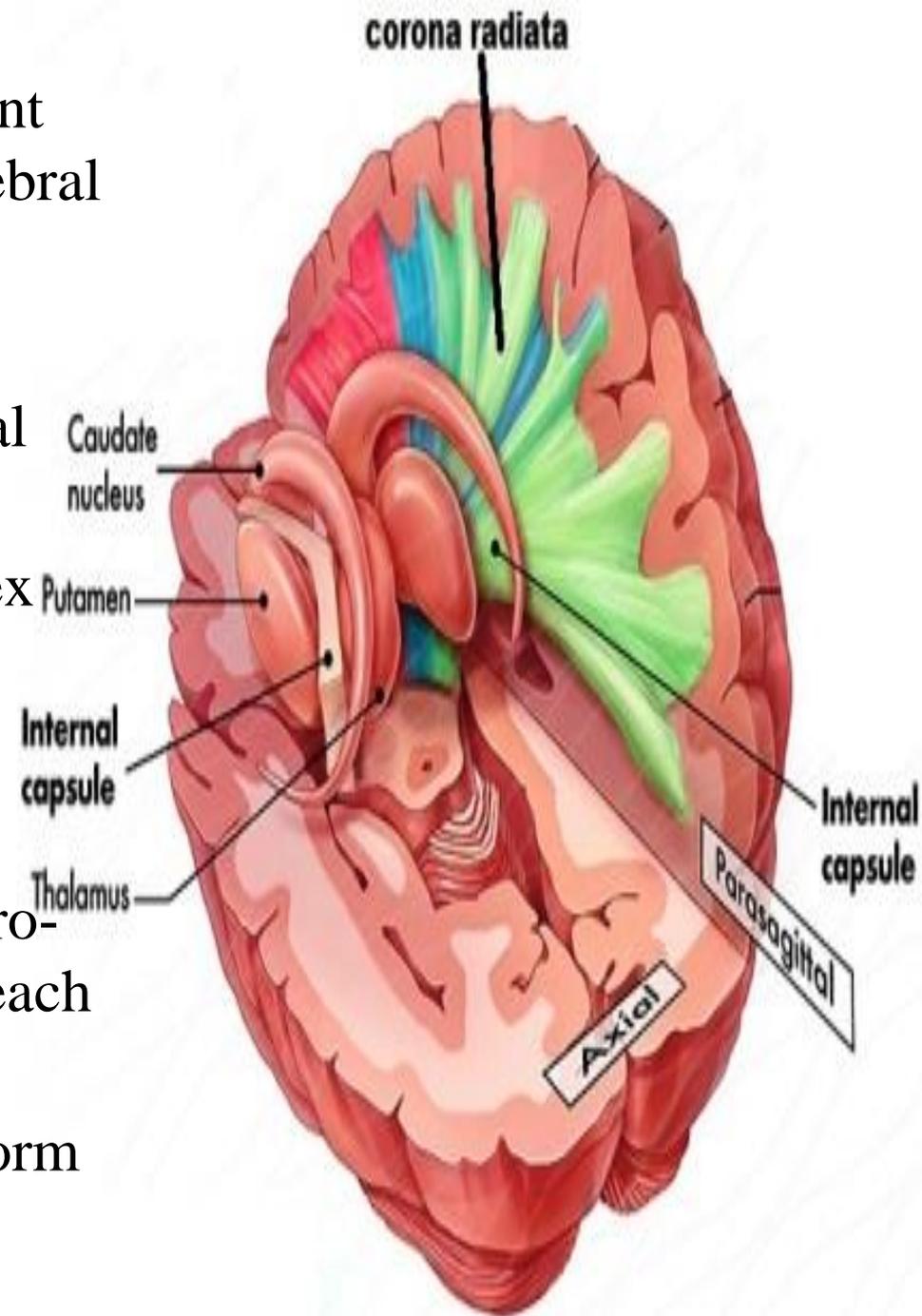
It includes

-the projection fibers of hippocampal formation (Fornix)

-the projection fibers of rest of cortex (corona radiata & internal capsule)

1-corona radiata

- Fan shaped sheet
- Superiorly its fibers diverge antero-posteriorly and transversely to reach the cerebral cortex
- inferiorly its fibers converge to form internal capsule



PROJECTION FIBERS

1-corona radiata

Descending fibers

1- cortico-spinal fibers

to AHCs of spinal nerves

2- cortico-nuclear(bulbar) fibers:

to motor nuclei of cranial nerves

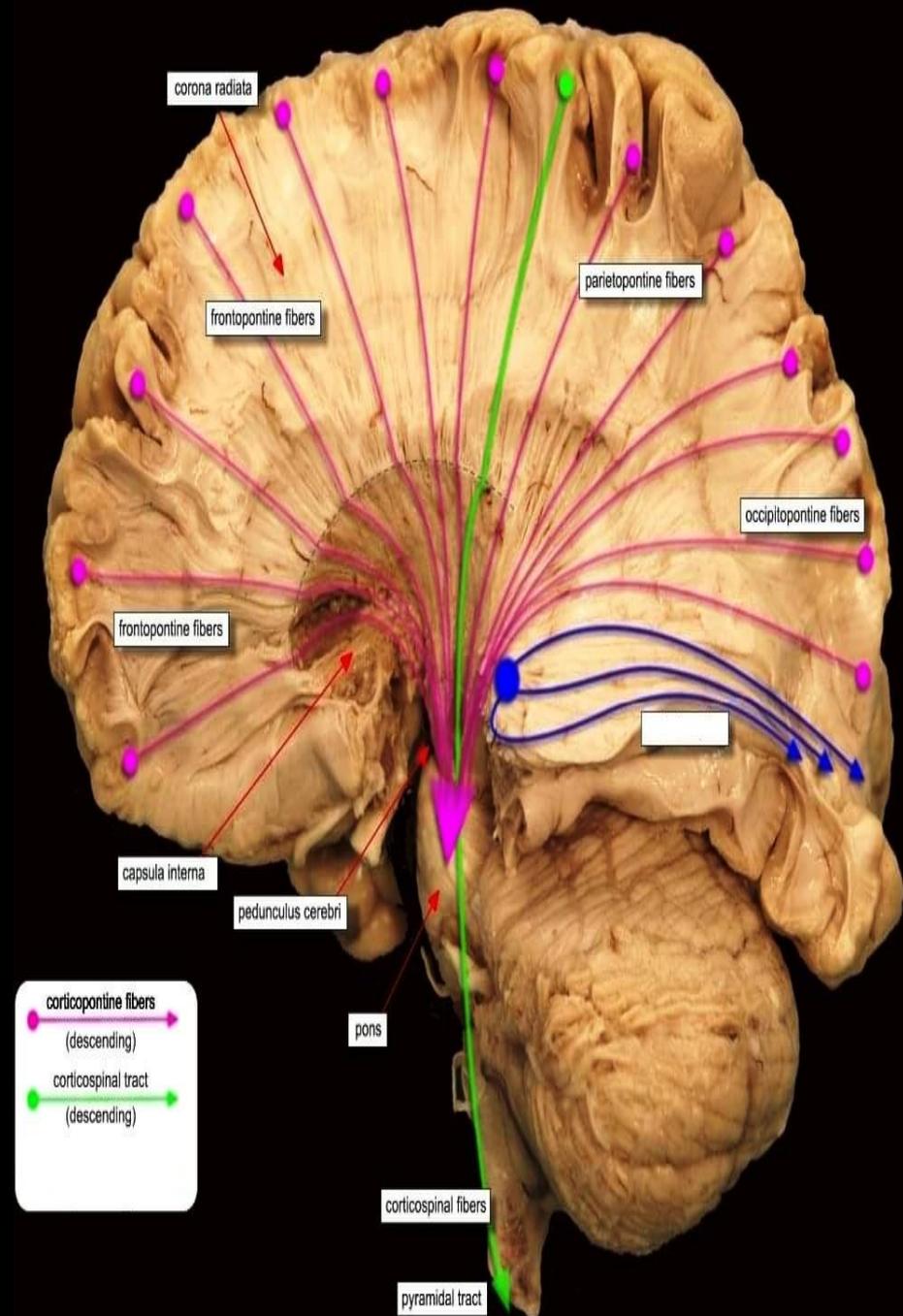
3-cortico-pontine fibers:

to pontine nuclei then continue as pontocerebellar fibers . They are 4 types

frontopontine - occipitopontine
- parietopontine - temporopontine

4-cortico rubral fibers:

to red nucleus in midbrain



PROJECTION FIBERS

1-corona radiata

Ascending fibers: All from thalamus
so called thalamic radiations

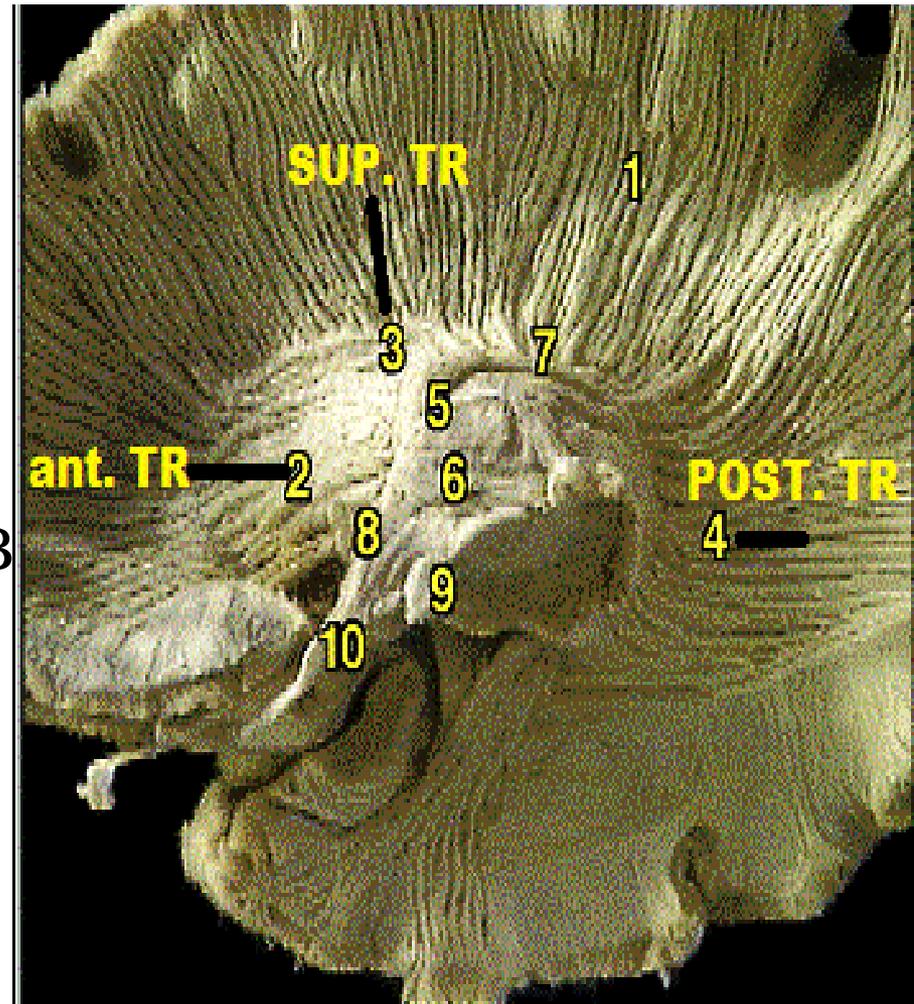
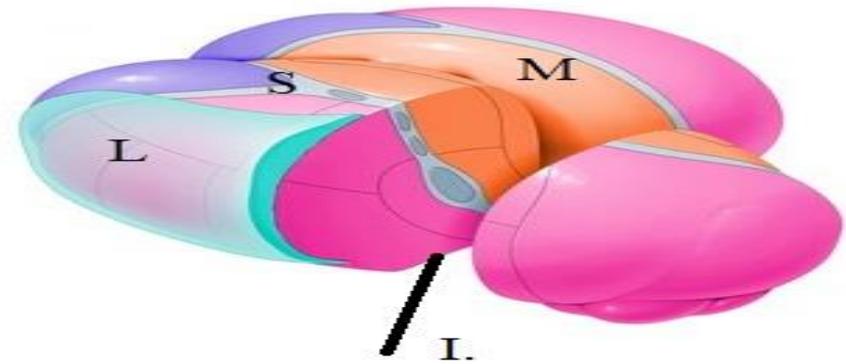
1- ant. thalamic radiation:

from ant. & medial nuclei of thalamus
to frontal lobe

2- superior thalamic radiation : from
VPL nucleus of thalamus to parietal
lobe (sensory area 3,1,2) so called
sensory radiation

3- post. Thalamic radiation : from LGB
to the occipital lobe (visual area) so
called optic radiation

4-inferior thalamic radiation : from
MGB to the temporal lobe (auditory
area) so called auditory radiation

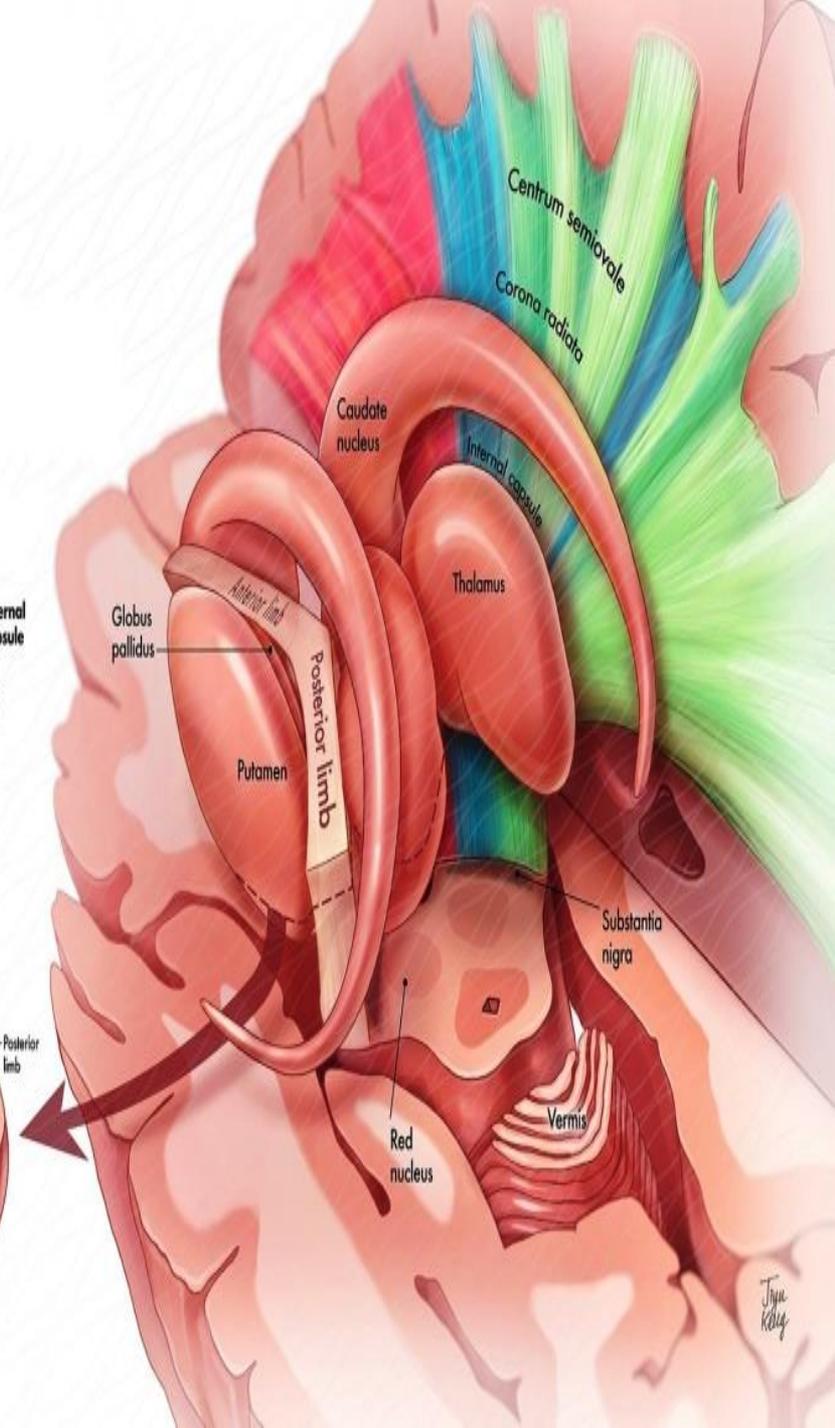
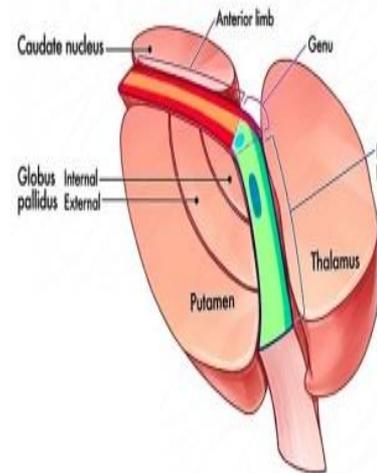
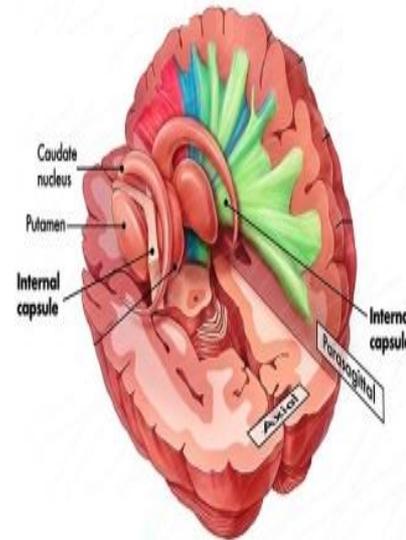


PROJECTION FIBERS

2-internal capsule

Def. & site:

It is the fibers of corona radiata after being collected on the medial side of lentiform nucleus, lateral to head of caudate and thalamus



PROJECTION FIBERS

2-internal capsule

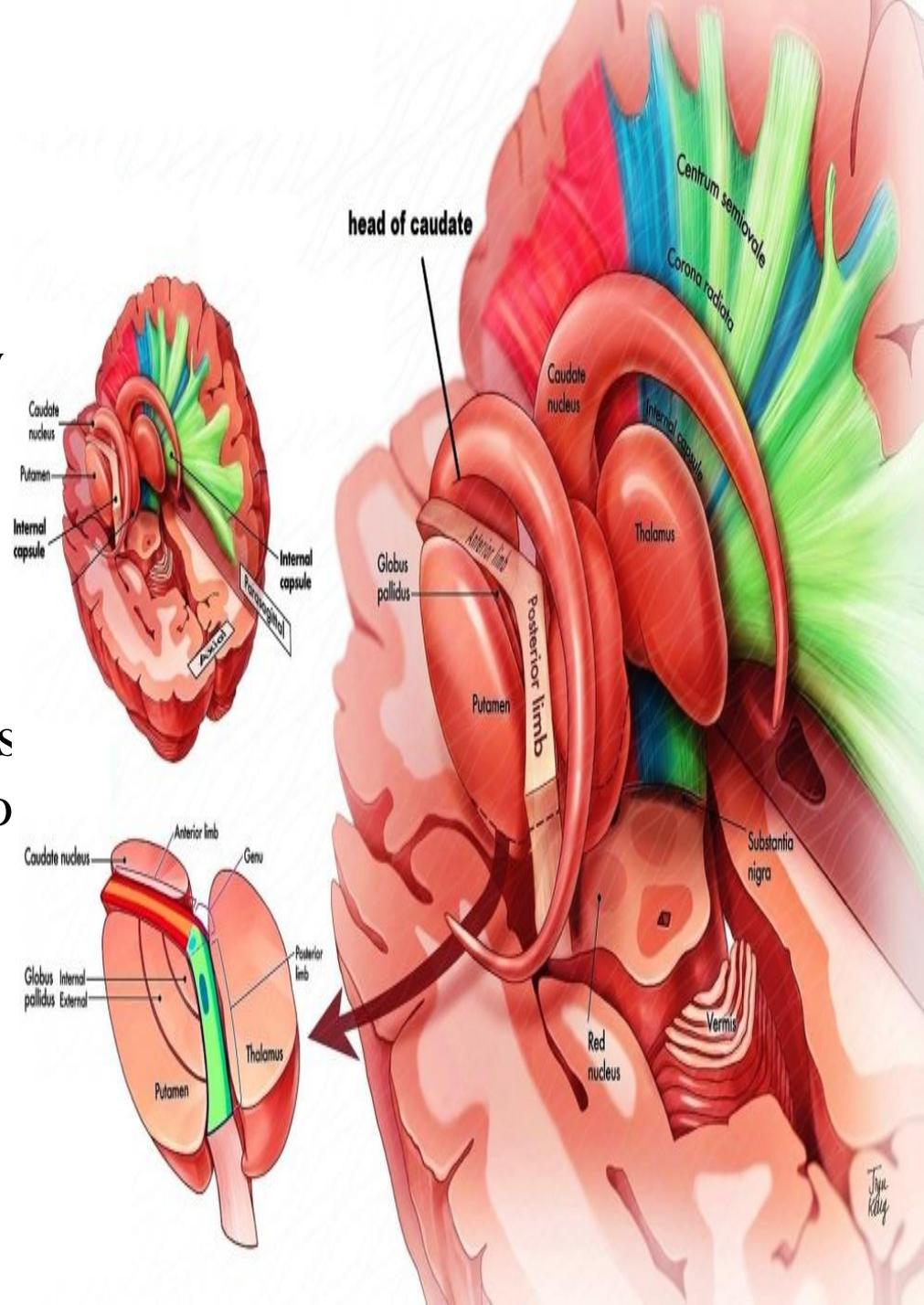
Shape & Parts & relations:

In transverse section: V shaped with its concavity directed laterally towards the lentiform nucleus. has 1-short ant. limb: between head of caudate (medially) & lentiform (laterally)

2-long post.limb: between thalamus (medially) & lentiform (laterally) so called thalamolenticular part

3-genu (apex): between head of caudate (ant.), thalamus (post.) & Lentiform nucleus (laterally)

4-retrolenticular part: behind lentiform



PROJECTION FIBERS

2-internal capsule

Shape & Parts & relations:

in coronal section:

L shaped

with post. limb & 5-sublenticular part which lies below post. end of lentiform N.

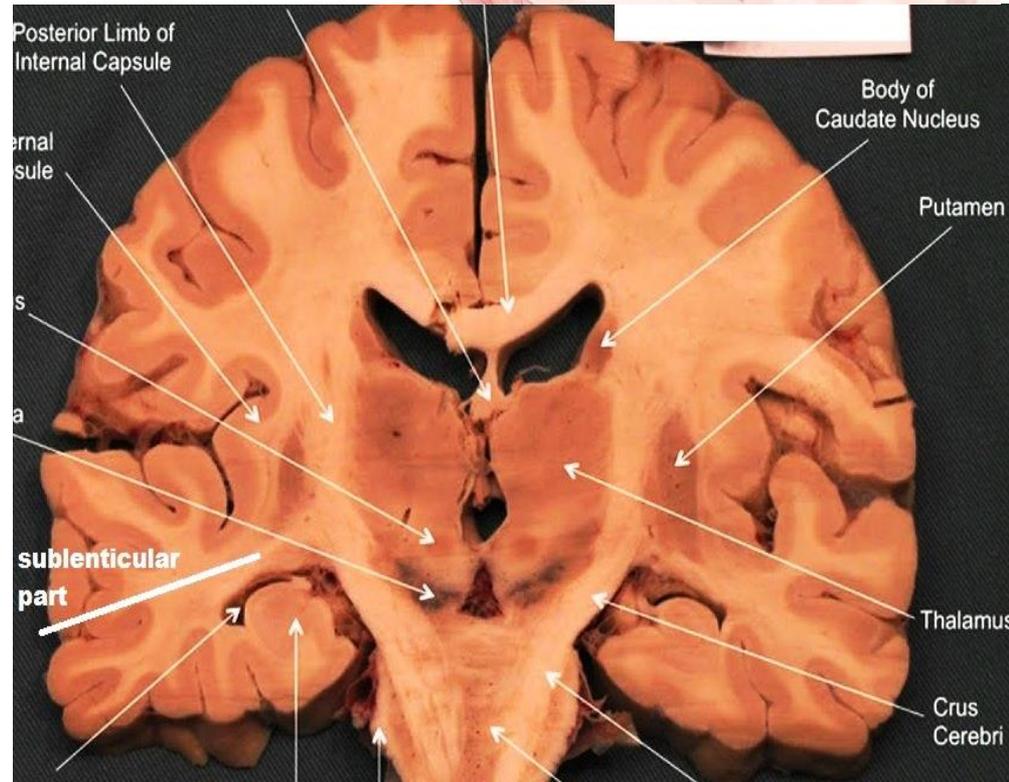
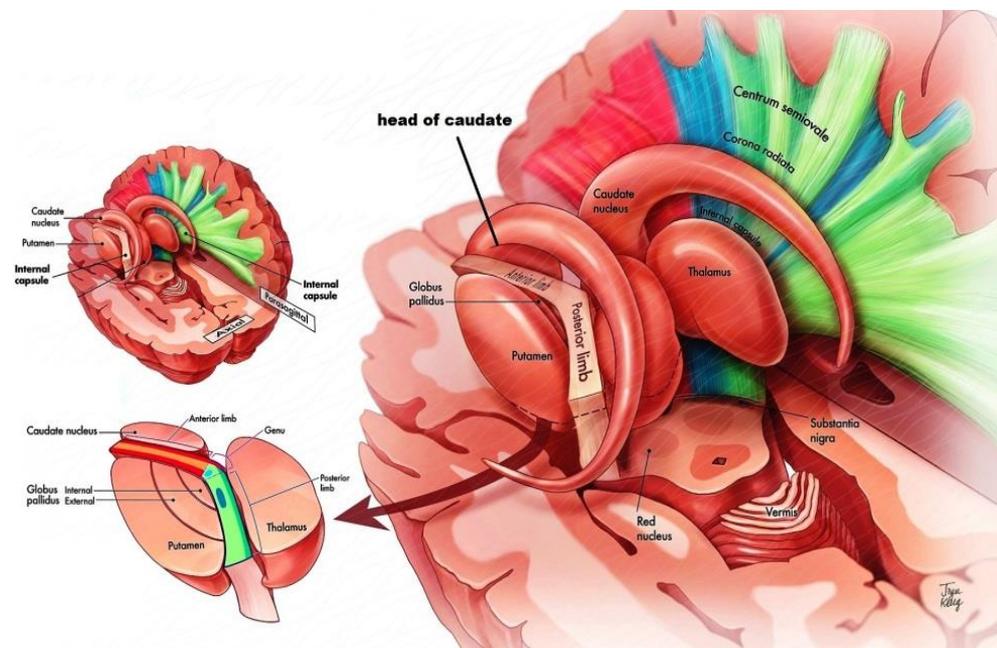
continuity:

superiorly:

continuous with corona radiata

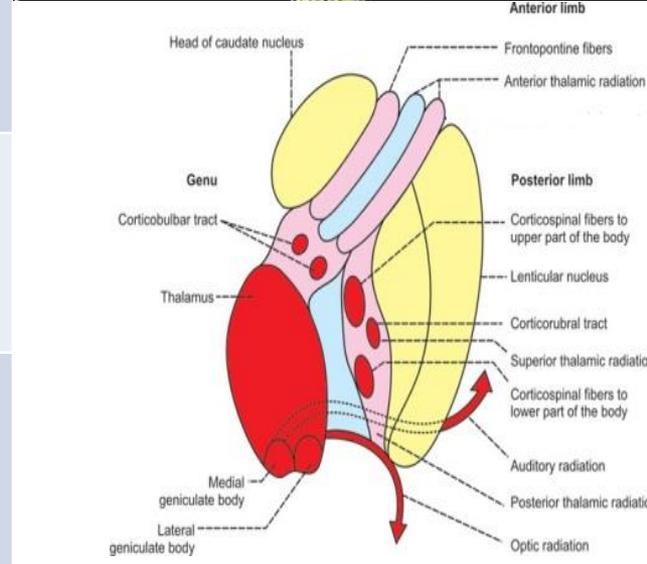
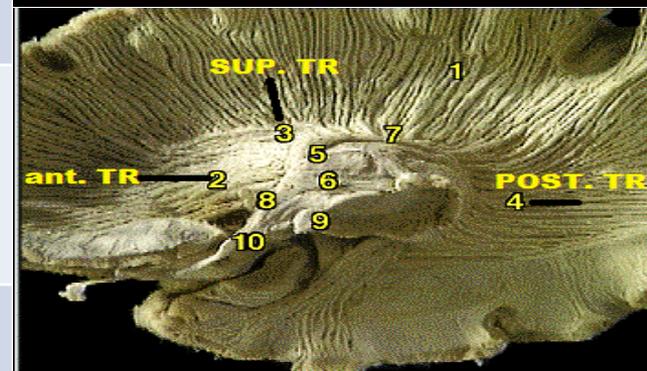
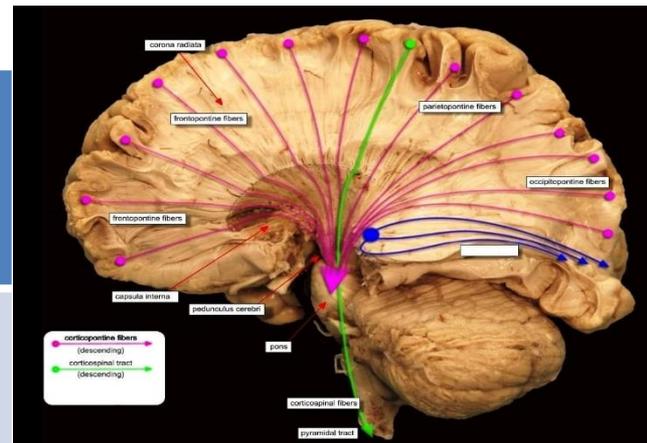
inferiorly:

continuous with crus cerebri



PROJECTION FIBERS

<i>descending fibers</i>	<i>ascending fibers</i>	<i>part</i>
fronto pontine	ant. thalamic R	ant. limb
<i>cortico nuclear</i>		genu
- <i>cortico spinal</i> -frontopontine -corticorubral	superior thalamic R	post. limb
Parieto pontine occipito pontine	Posterior (optic)radiation	retrolenticular part
temporo pontine	Inferior (auditory) radiation	sublenticular part



BASAL NUCLEI

BASAL NUCLEI

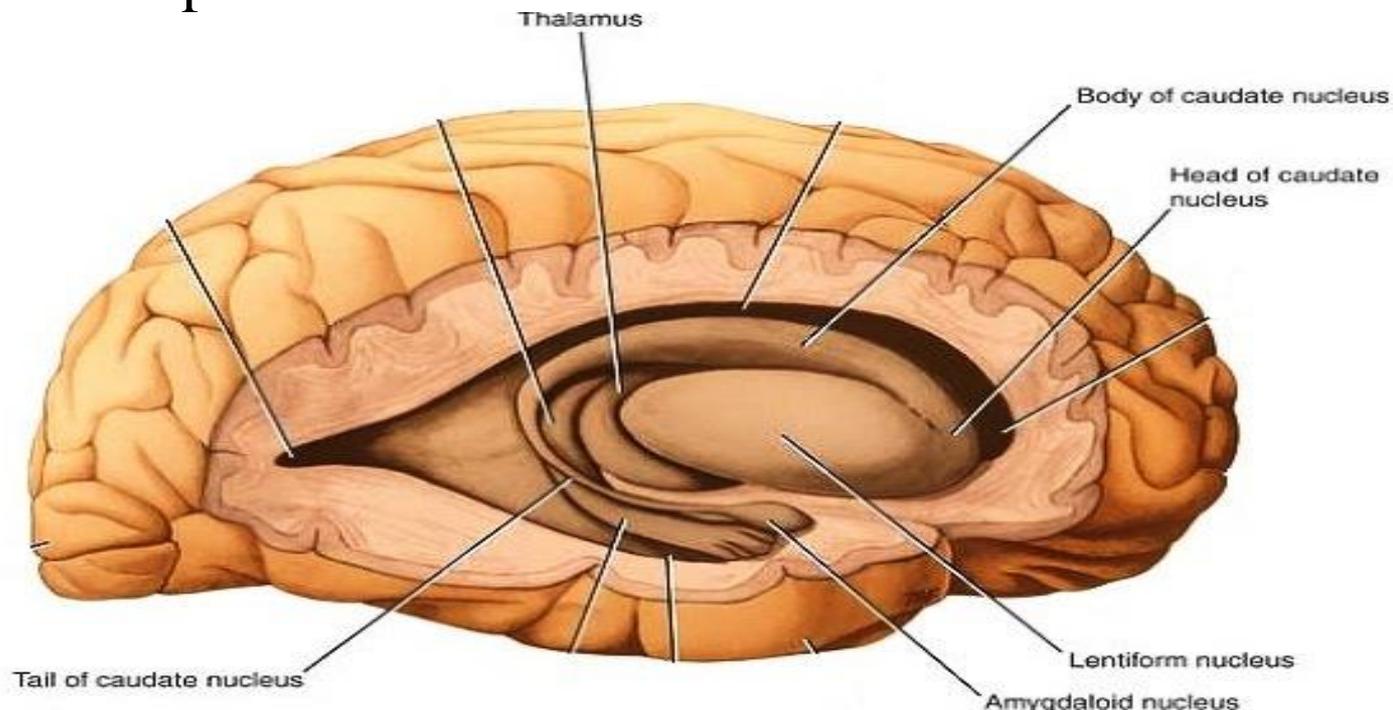
Def.:-Masses of grey matter situated inside white matter of each hemisphere near the basal (inferior) surface. They are

1-caudate nucleus

2-lentiform nucleus

3-amygdaloid nucleus: deep to uncus

4-claustrum



BASAL NUCLEI

Lentiform

Shape

biconvex lens,
with ant. and pos. ends,
convex lateral and medial surfaces

Parts

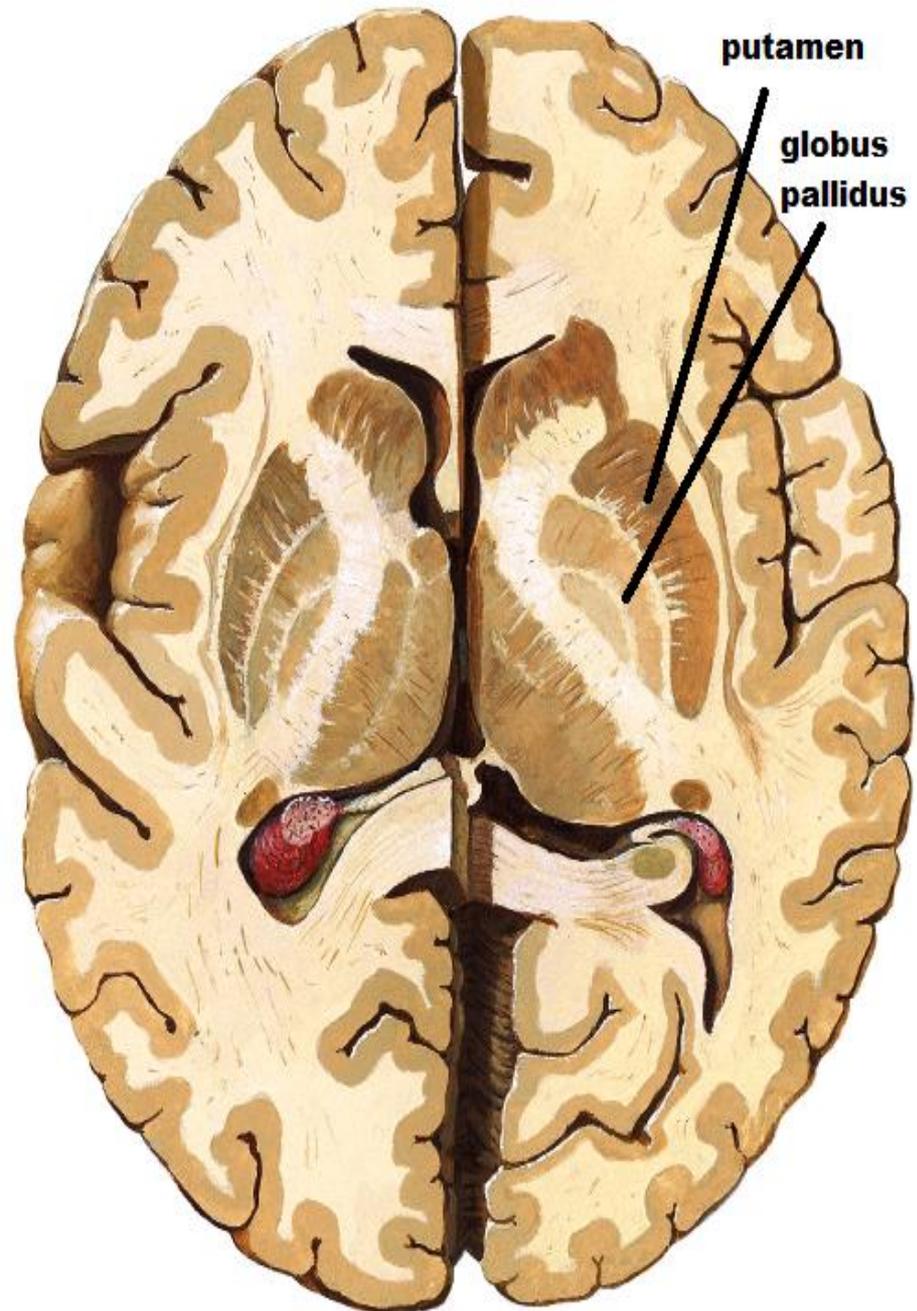
as seen in sections, it is two parts:
putamen , globus pallidus

1-putamen:

Larger-Lateral-darker(multiple
small cells)-the afferent part

2-globus pallidus:

Smaller-medial-paler-(fewer larger
cells)-the efferent part



BASAL NUCLEI

caudate

Shape

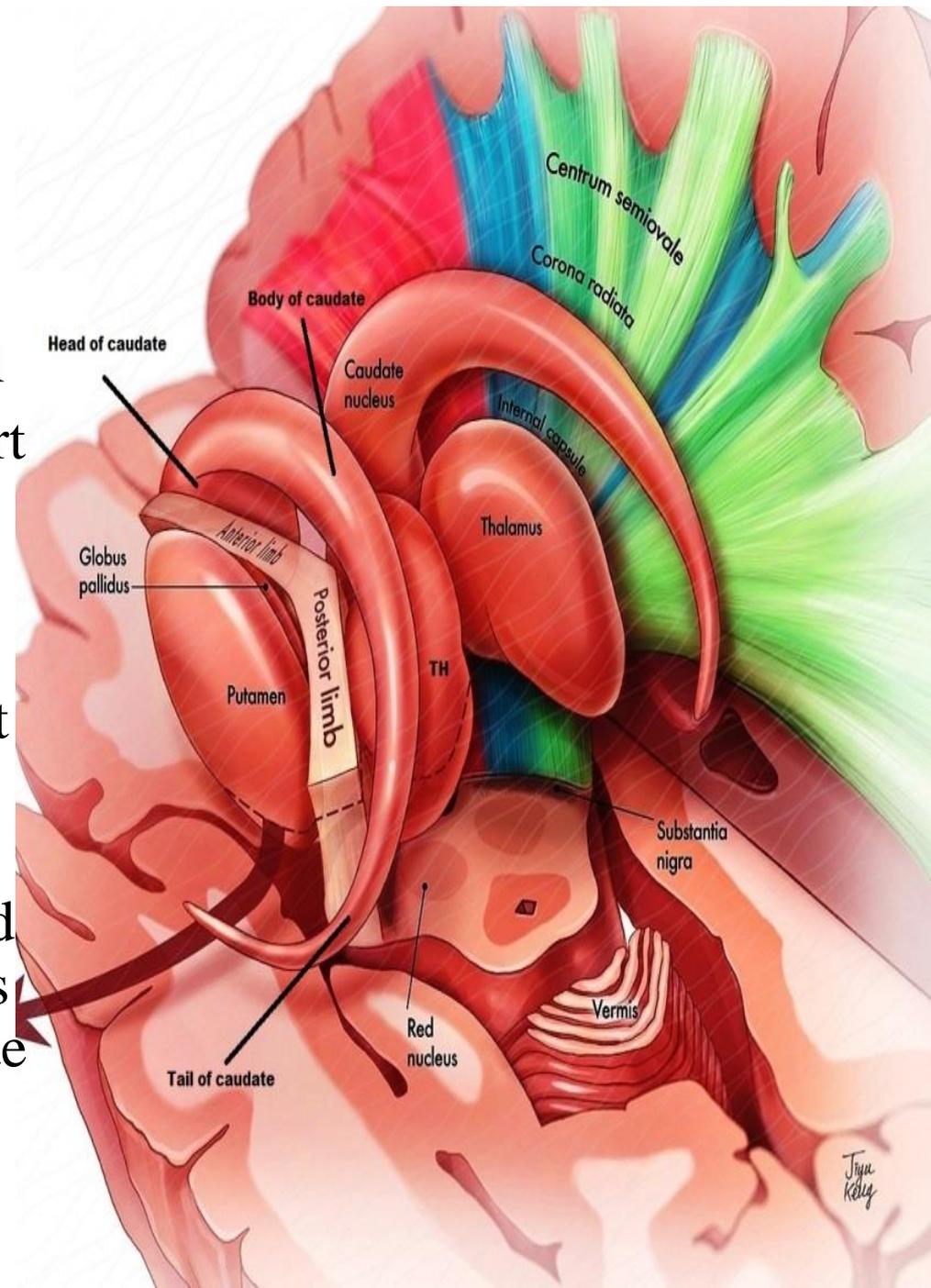
tailed comma shaped nucleus,

Parts:-formed of head , body & tail

1-head: pear shape bulging ant. Part
in front of thalamus

2-body: narrow part that extends
along the thalamus . Begins at the
ant. end of thalamus & ends at post
end of thalamus

3- tail: the narrowest part of the
caudate nucleus, extending forward
from post. end of thalamus, to ends
in the amygdaloid nucleus, opposite
the uncus



BASAL NUCLEI

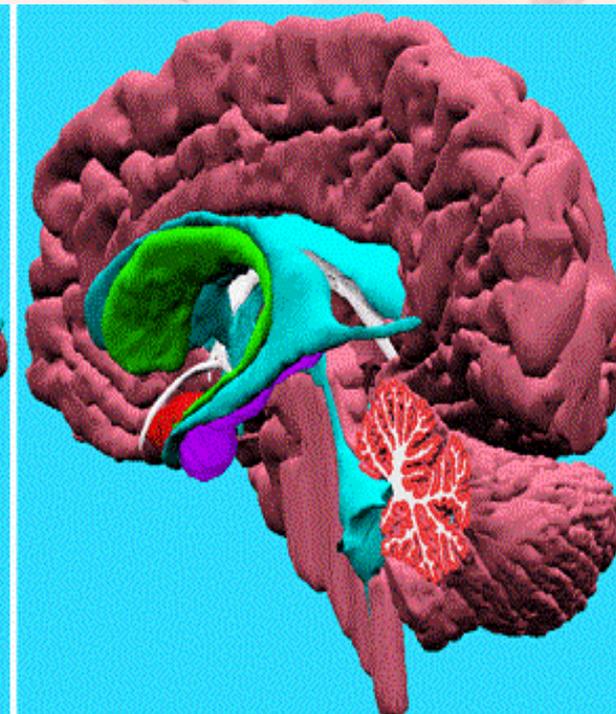
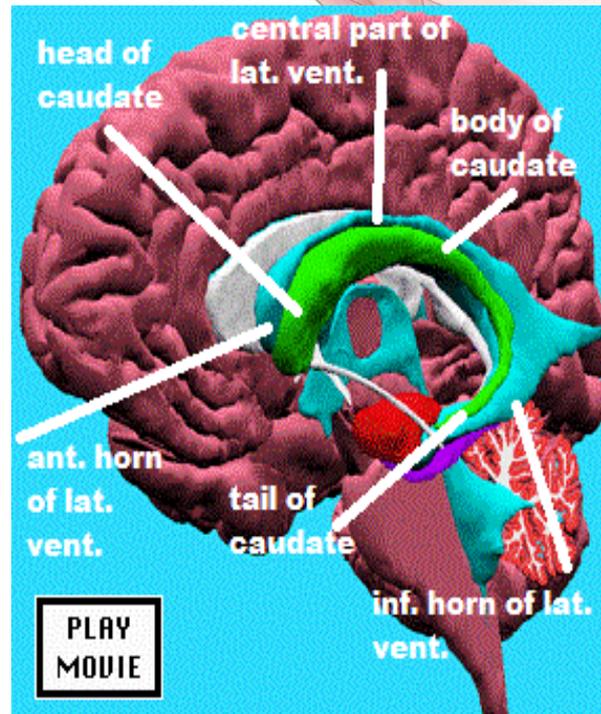
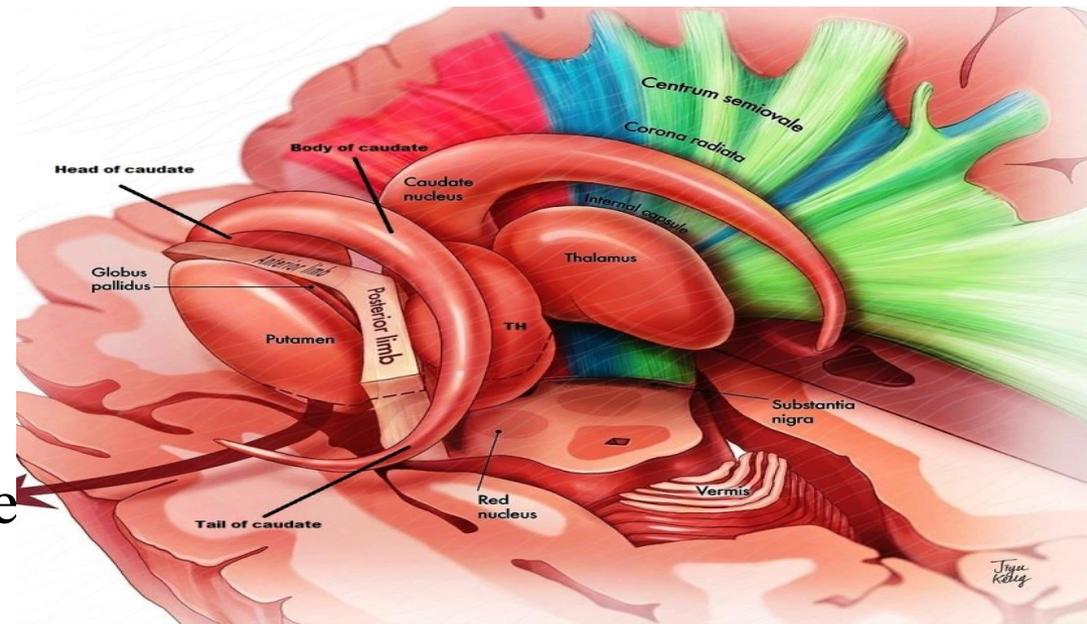
N.B.

Caudate enclose:

1- thalamus

2- int. capsule as the body is medial to internal capsule while the tail is lateral to it

caudate is enclosed by:
lateral ventricle



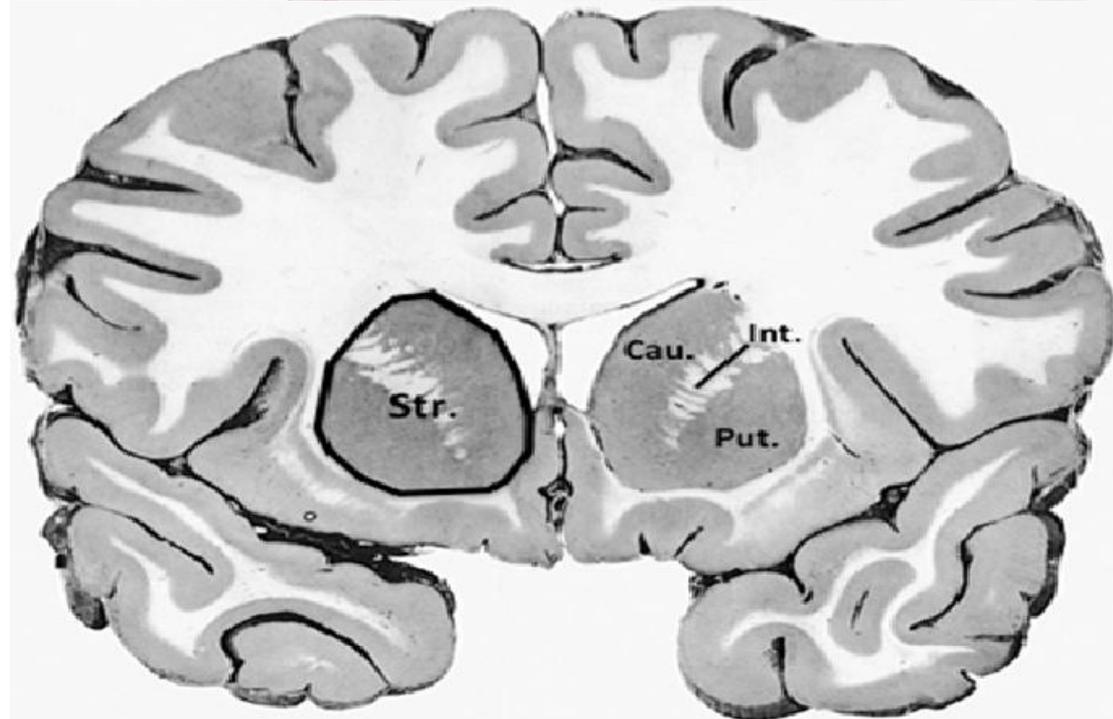
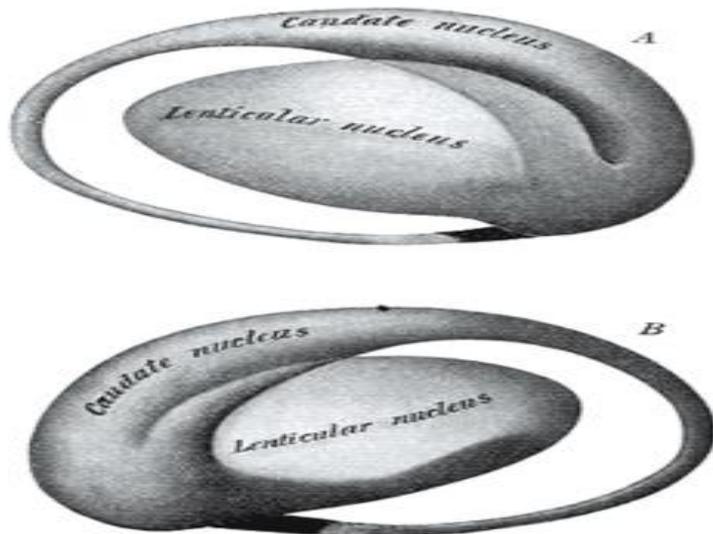
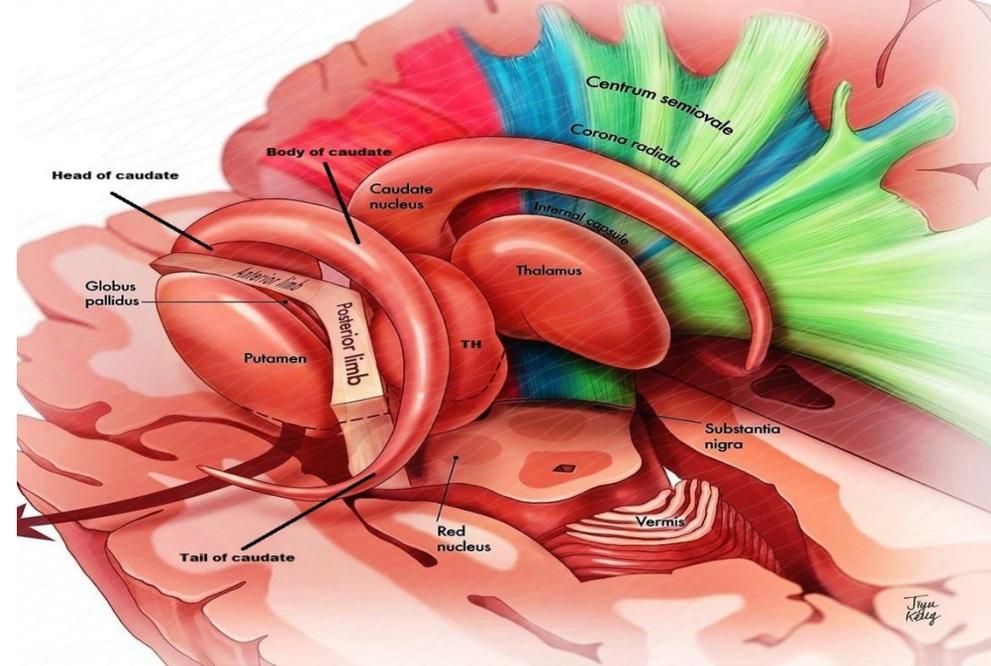
BASAL NUCLEI

N.B.:-striatum

it is caudate, lentiform & ant. limb of int. capsule

-called striatum because head of caudate & ant. end of

putamen of lentiform are connected together by grey striations across & below ant. limb of internal capsule.



BASAL NUCLEI

Relations of lentiform

Medially :highly convex surface

-int. capsule that separate it from

- head of caudate(anteriorly&

-thalamus (posteriorly)

laterally:

in order from medial to lateral

- external capsule

- claustrum

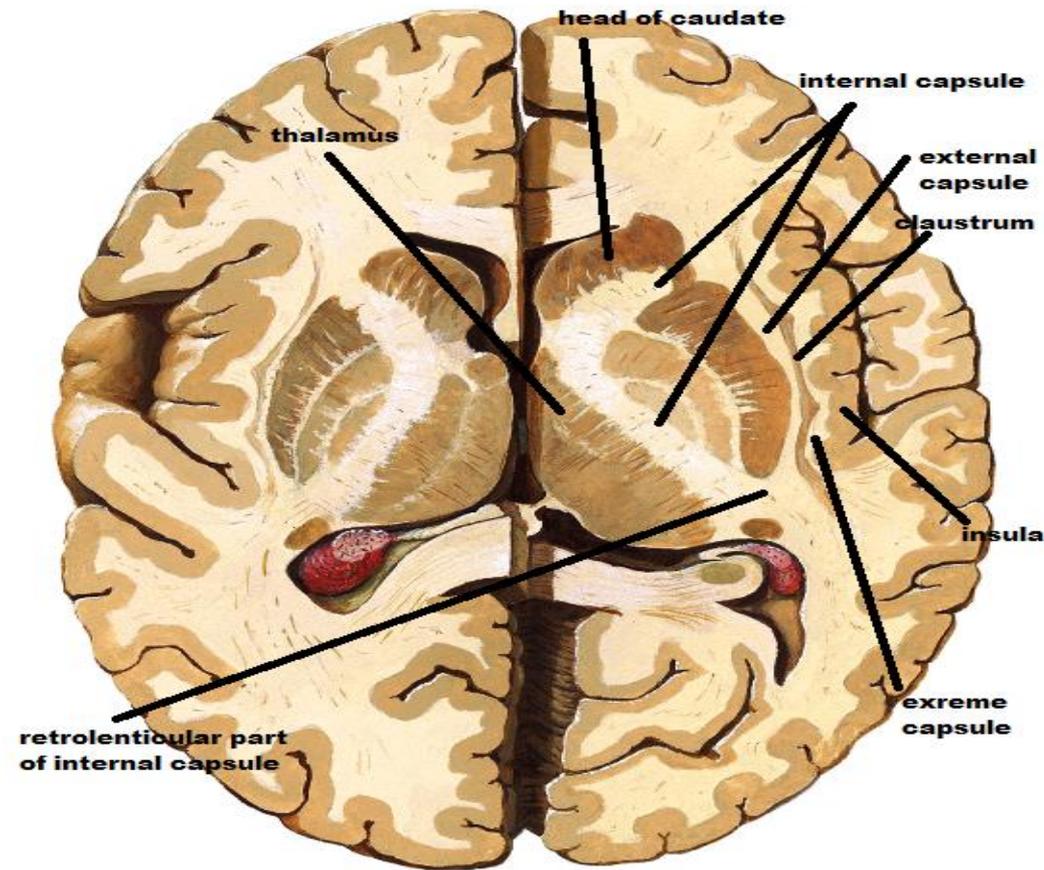
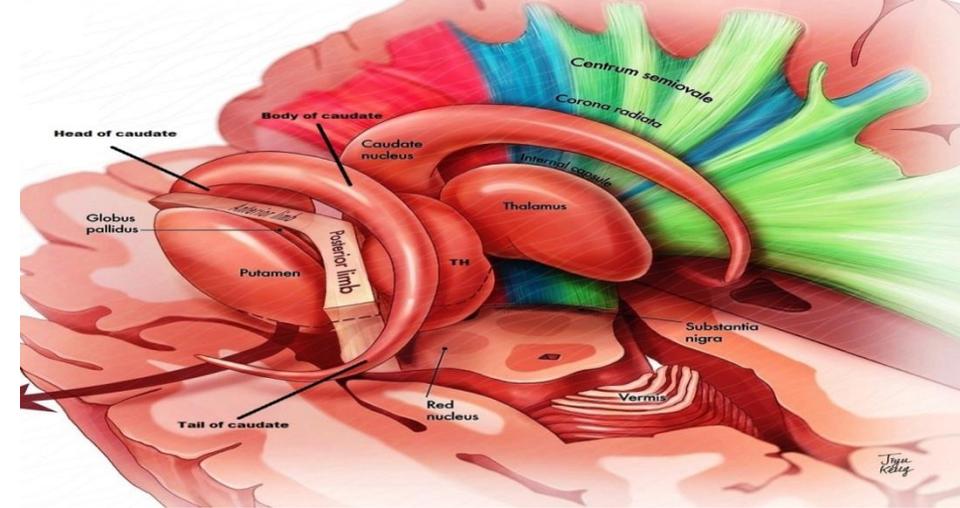
- extreme capsule

- insula.

ant. end : -striatum

post. end :-optic radiation in

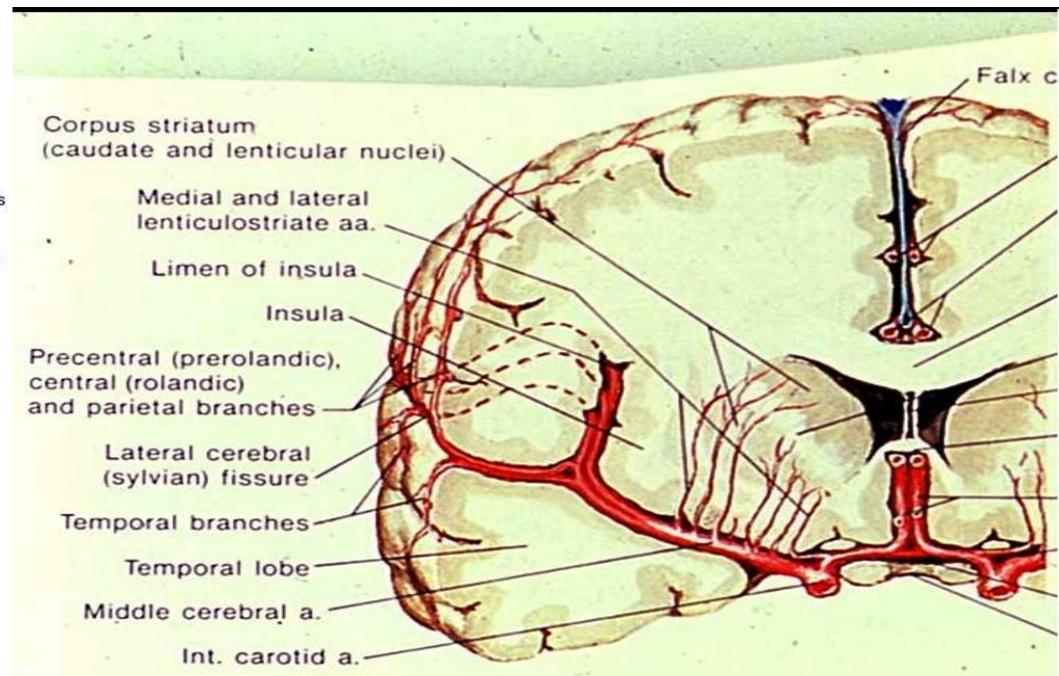
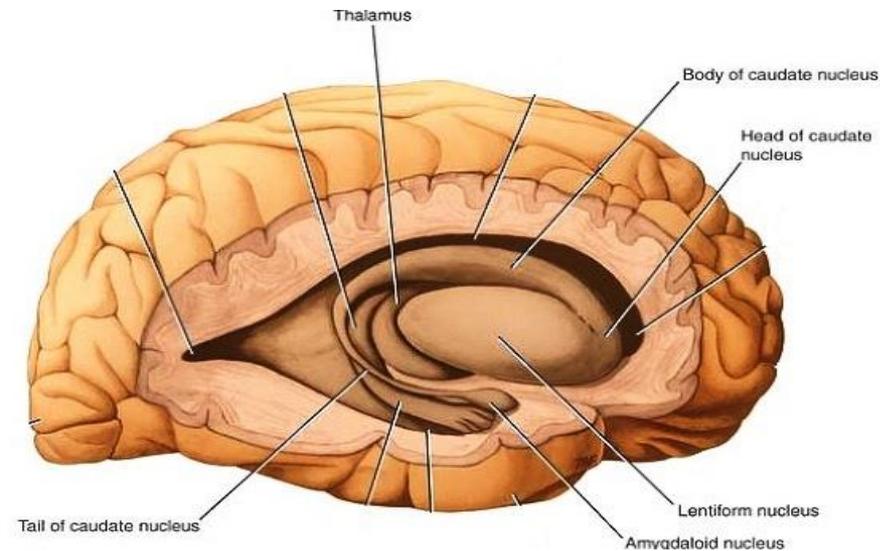
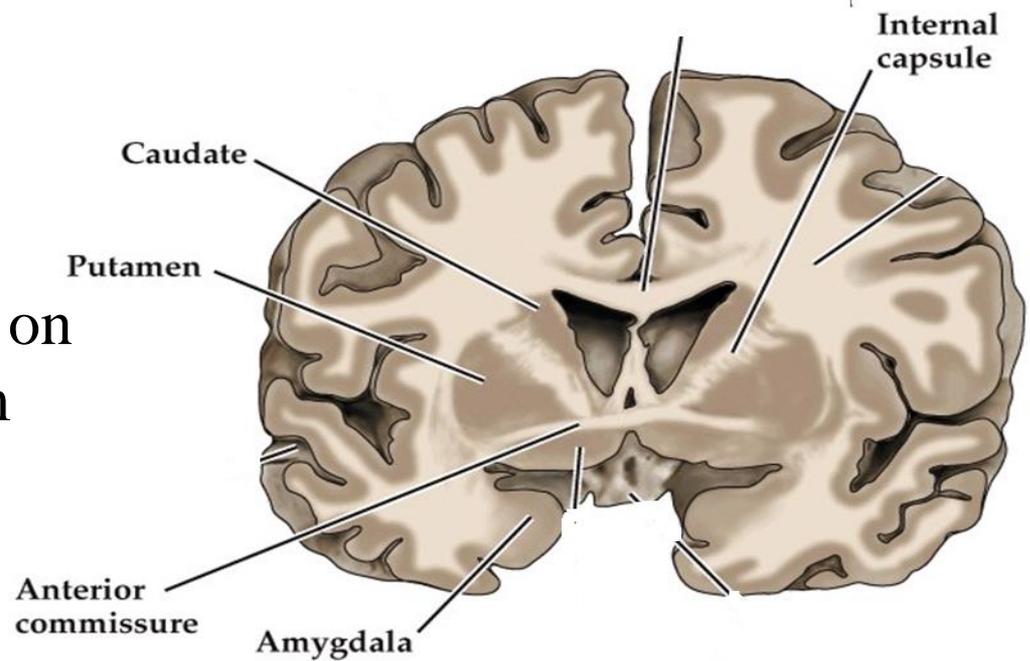
retrolenticular part of int. capsule



BASAL NUCLEI

Relations of lentiform inferiorly:

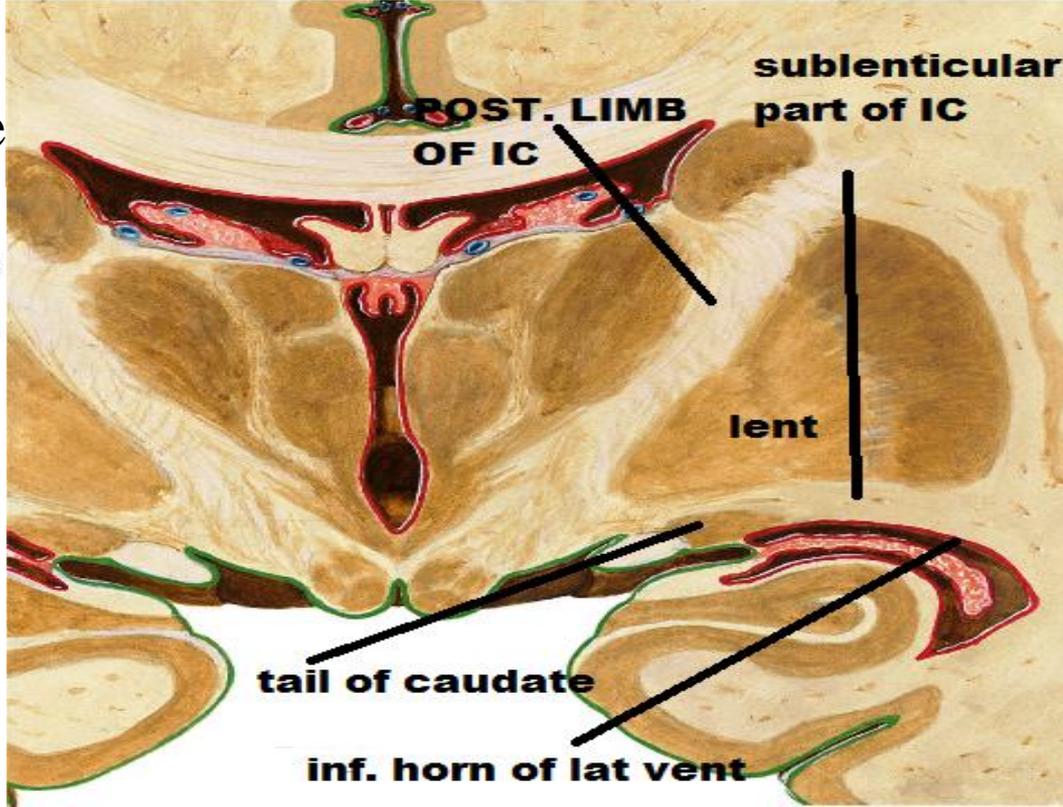
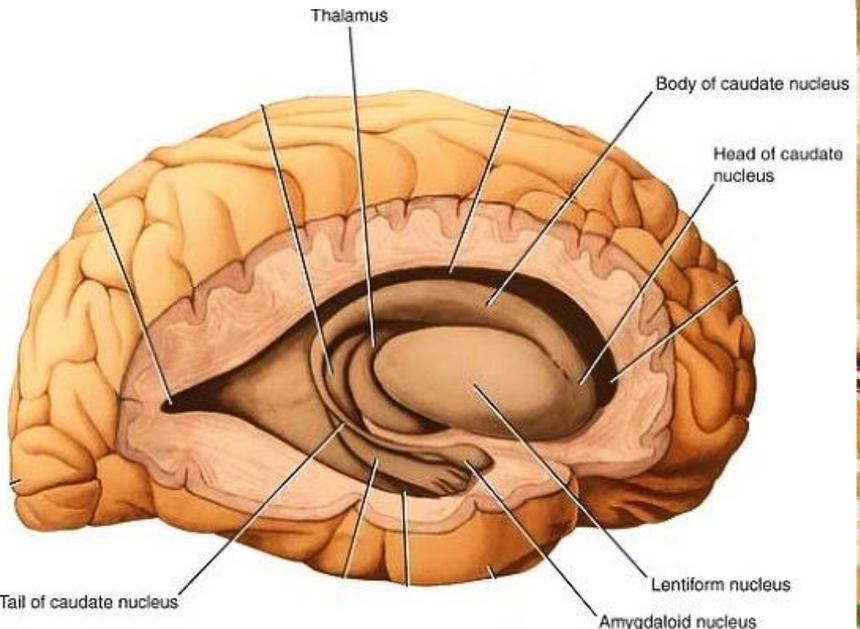
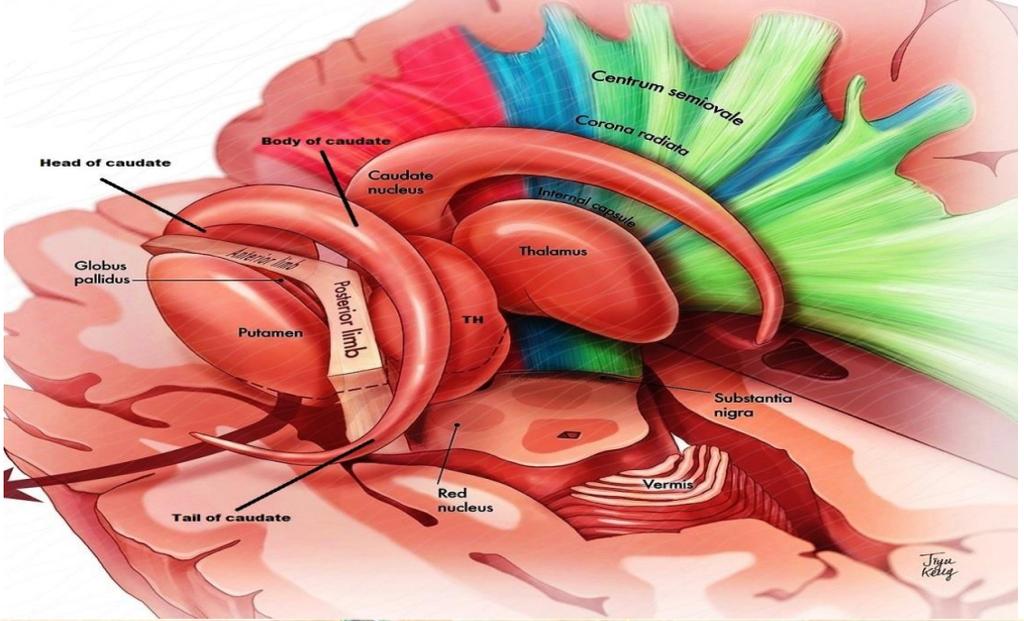
- ant. commissure: form groove on the inferior surface of lentiform nucleus
- ant. perforated substance:
- pierced by striate arteries.
- amygdaloid



BASAL NUCLEI

Relations of lentiform inferiorly:

- sublenticular part of int. capsule that separate the lentiform from
- stria terminalis
- tail of caudate
- inferior horn of lateral ventricle

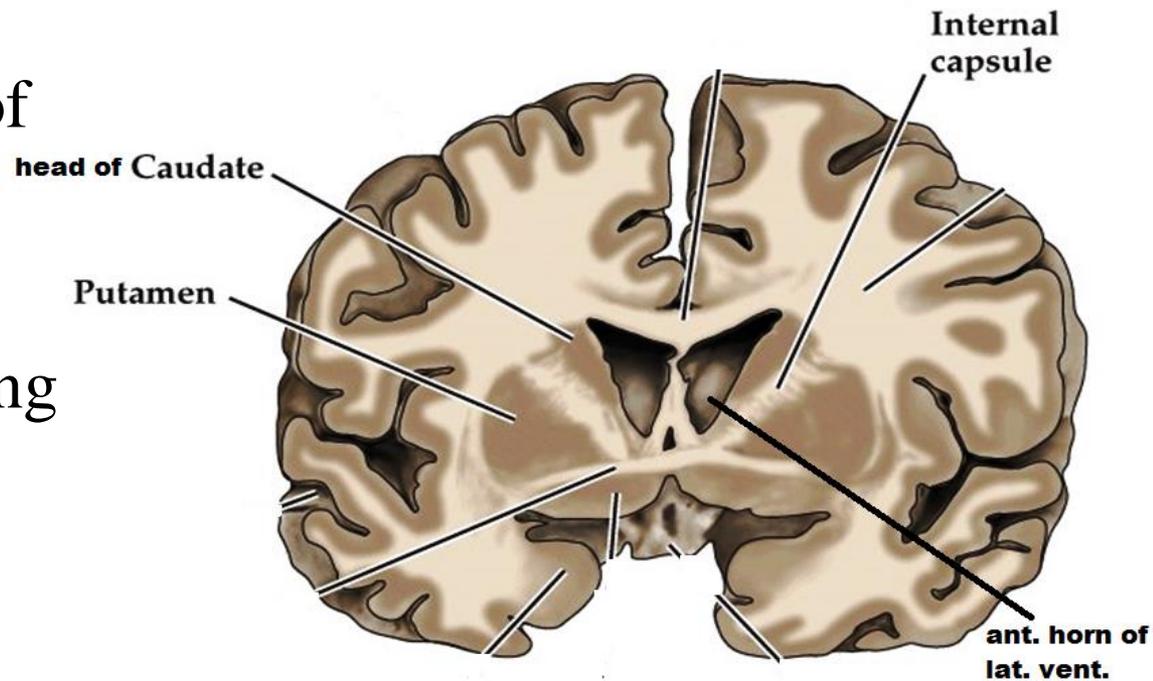
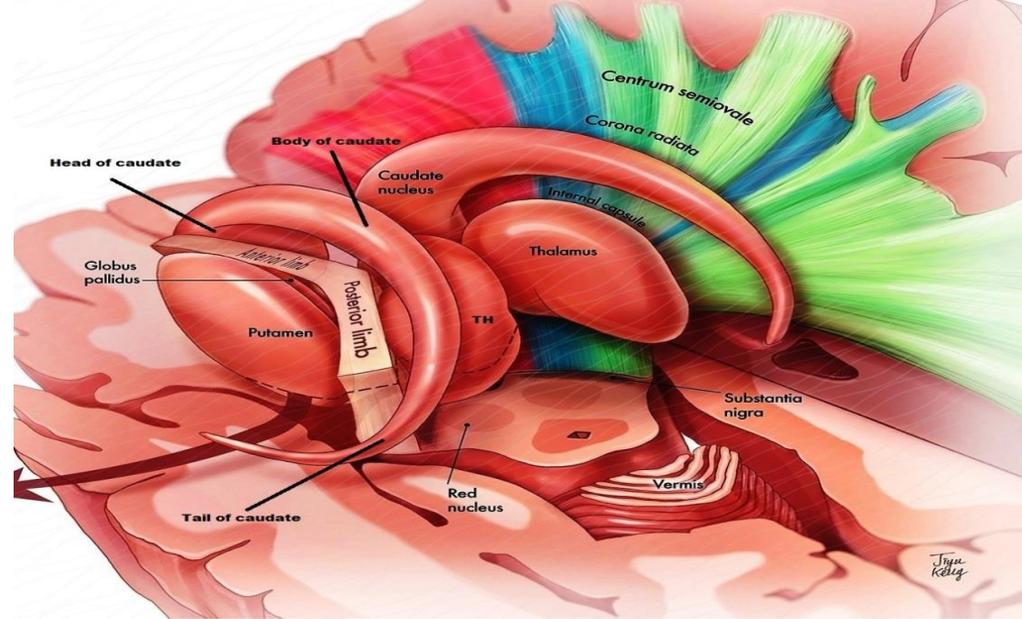


BASAL NUCLEI

Relations of caudate head

seen in ant. coronal section with the following relations:

- forms lateral wall of ant. horn of lateral ventricle
- forms medial boundary of ant. limb of int. capsule
- partly connected with :
ant. end of putamen forming striatum



BASAL NUCLEI

Relations of caudate

body

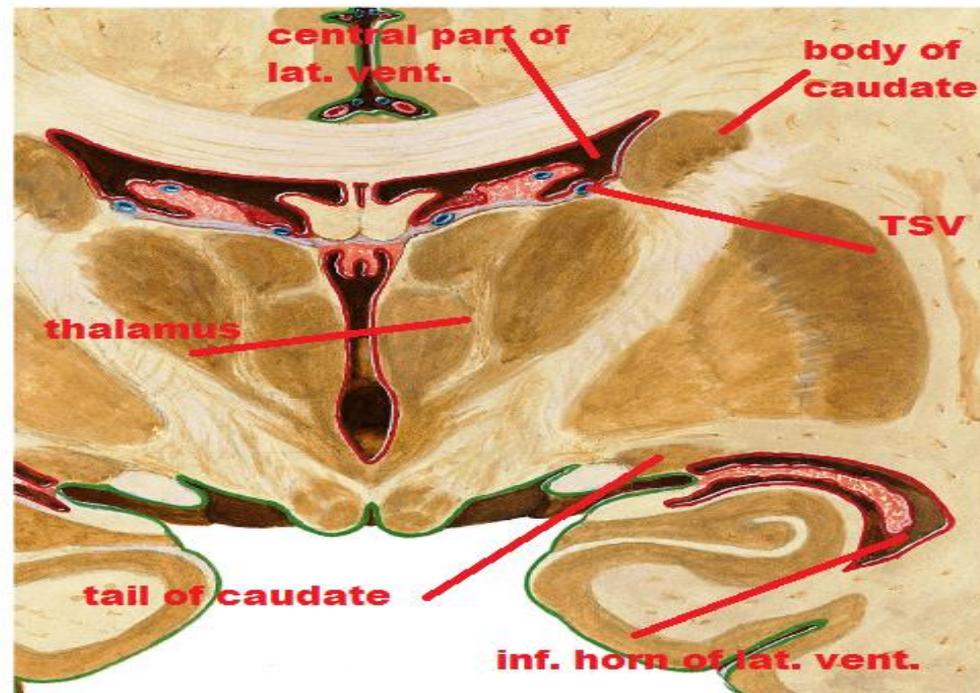
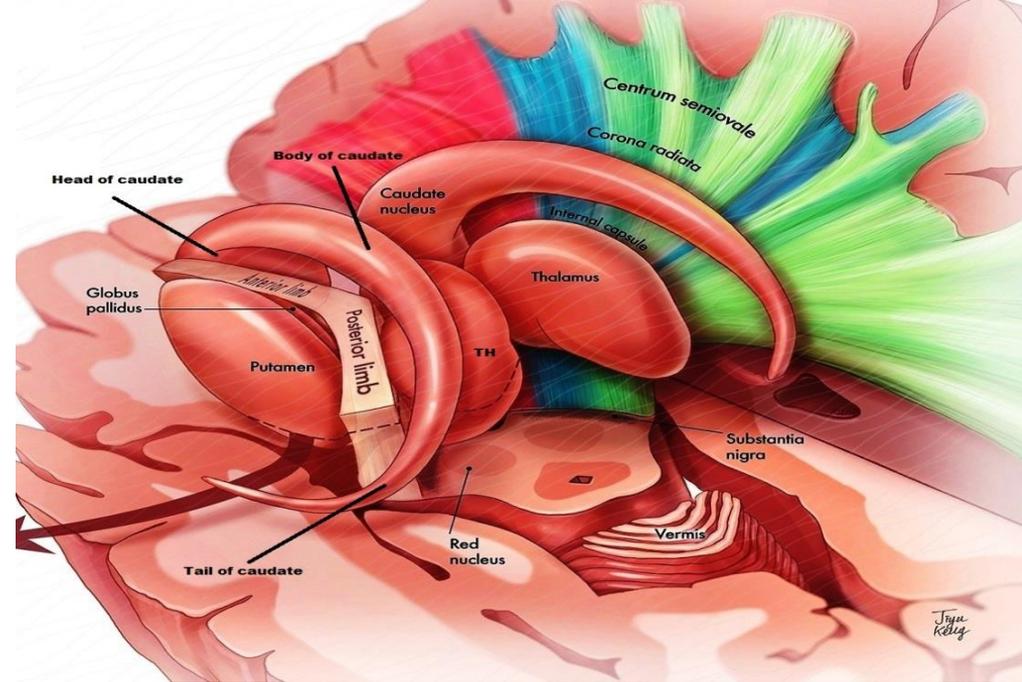
seen in middle coronal section with the following relations:

-it lies superolateral to thalamus separated from it by groove that contain stria terminalis & thalamostriate v.

-forms the most lateral structure in floor of central part of lateral ventricle

tail

form part of the roof of inferior horn of the lateral ventricle



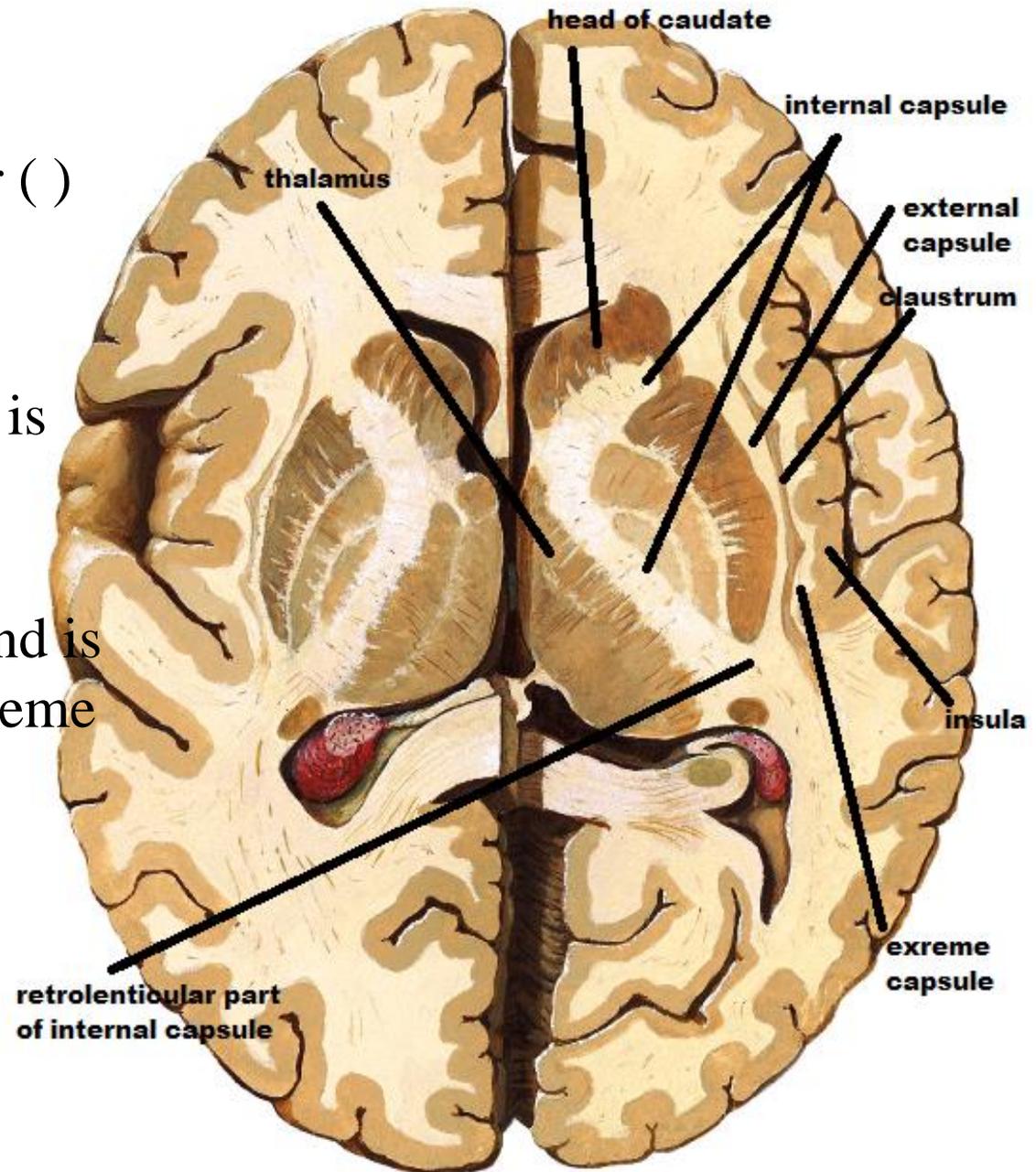
BASAL NUCLEI

Clastrum

Site: thin plate of grey matter ()
lentiform nucleus & insula

Shape & relations:

- medial surface is smooth & is separated from putamen of lentiform by external capsule
- lateral surface is irregular and is separated from insula by extreme capsule



THANK