

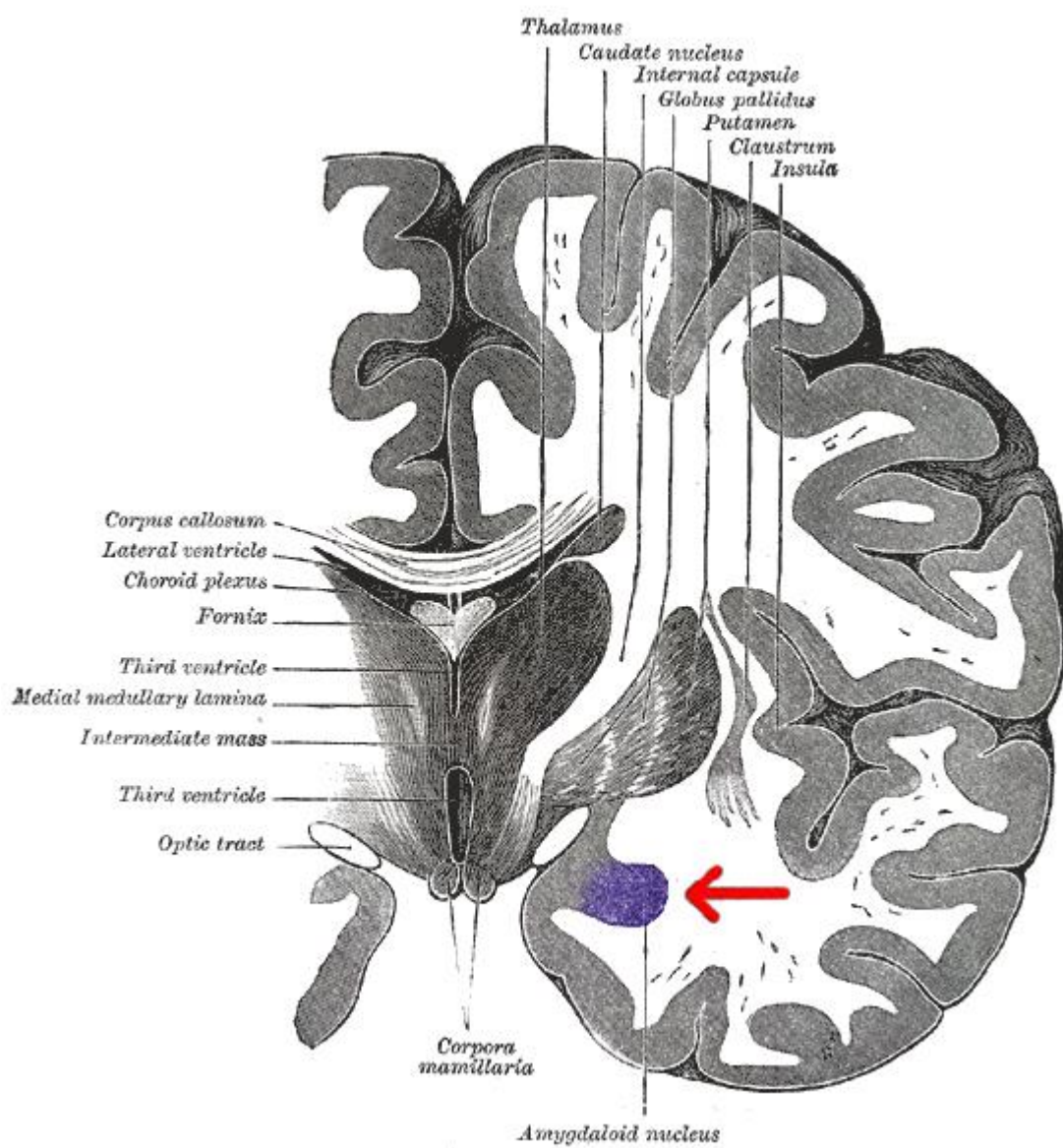
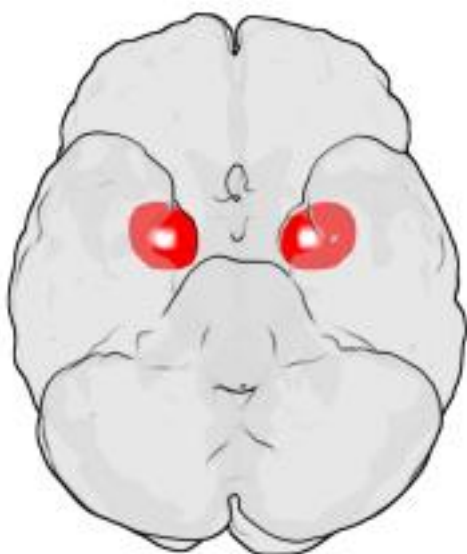
Amygdala

Last updated: September 13, 2019

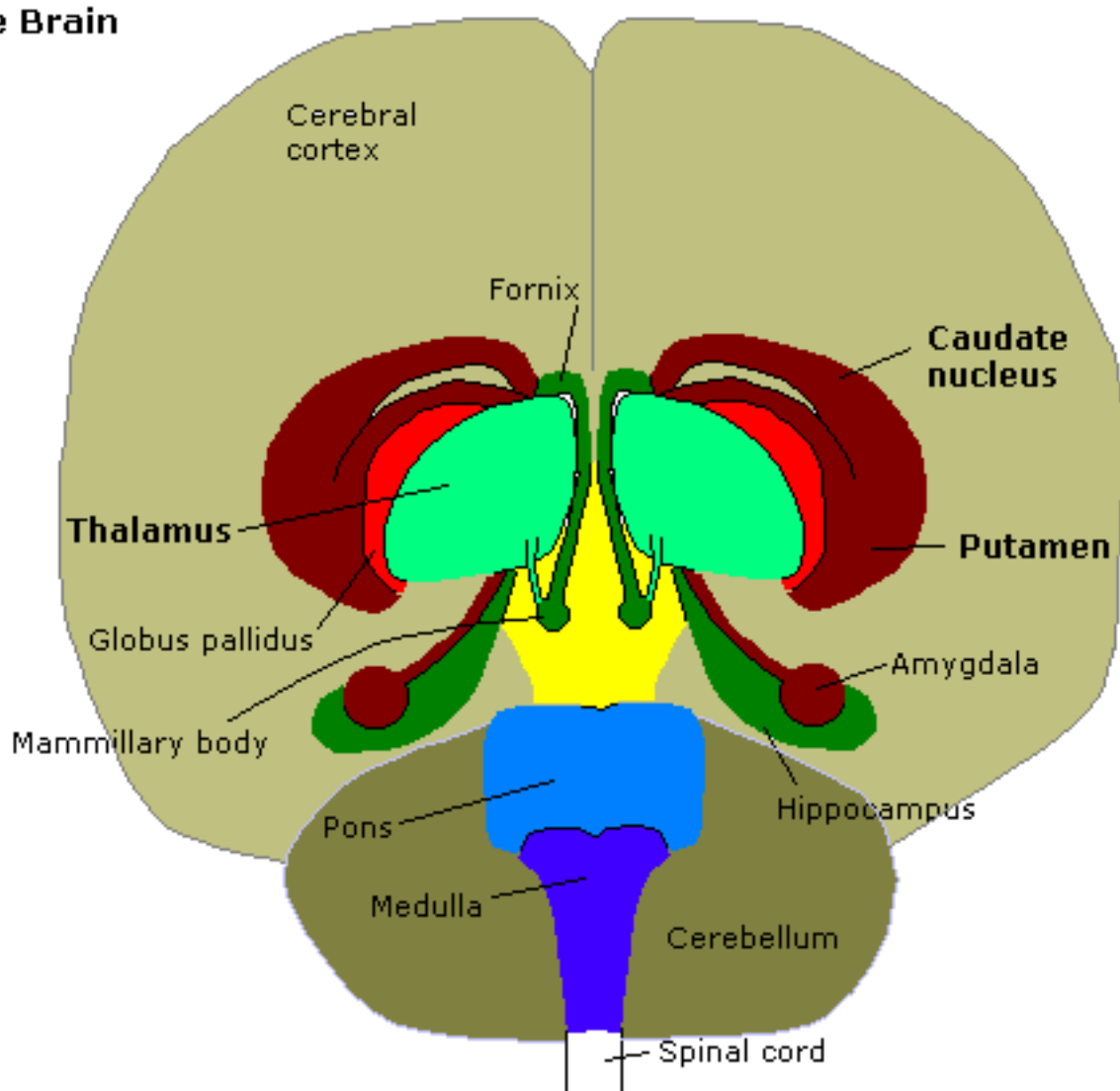
ANATOMY..... 1
 IMAGING..... 3
 CONNECTIONS..... 3
 FUNCTION 4
 LESIONS..... 4

ANATOMY

- almond-shaped structure.
- average size in humans 1.24-1.63 cm³
- one portion is a ventromedial extension of the striatum, a second part comprising the caudal olfactory cortex, and a third region representing the ventromedial extension of the claustrum.
- amygdala has been subdivided based on its histological characteristics into 2 major areas (anterior amygdaloid area and corticoamygdaloid transition area), 6 nuclei (central, medial, cortical, accessory basal, basal, and lateral), and 1 intercalated cell group.

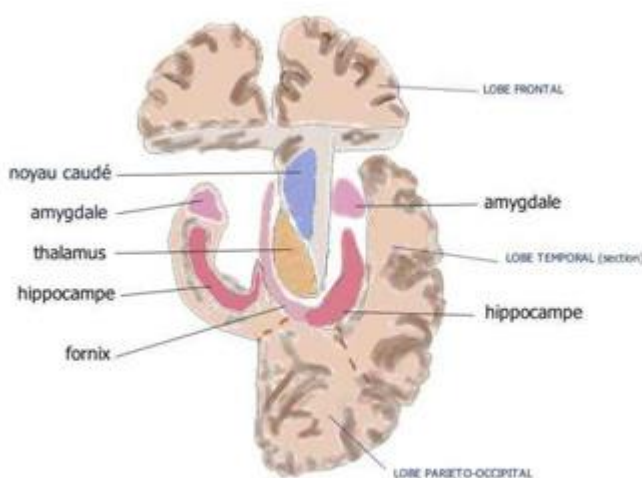
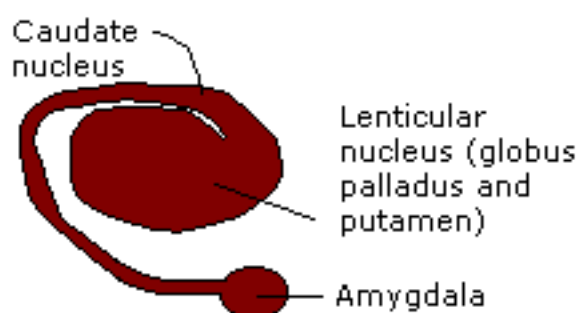


The Brain

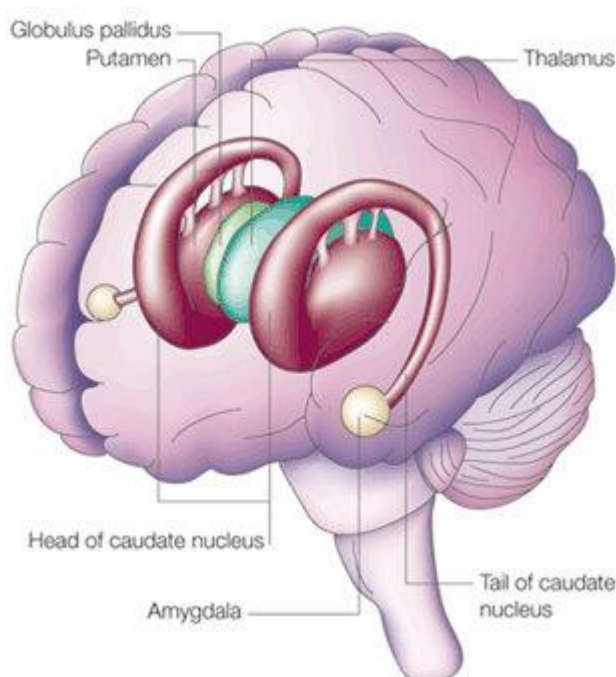


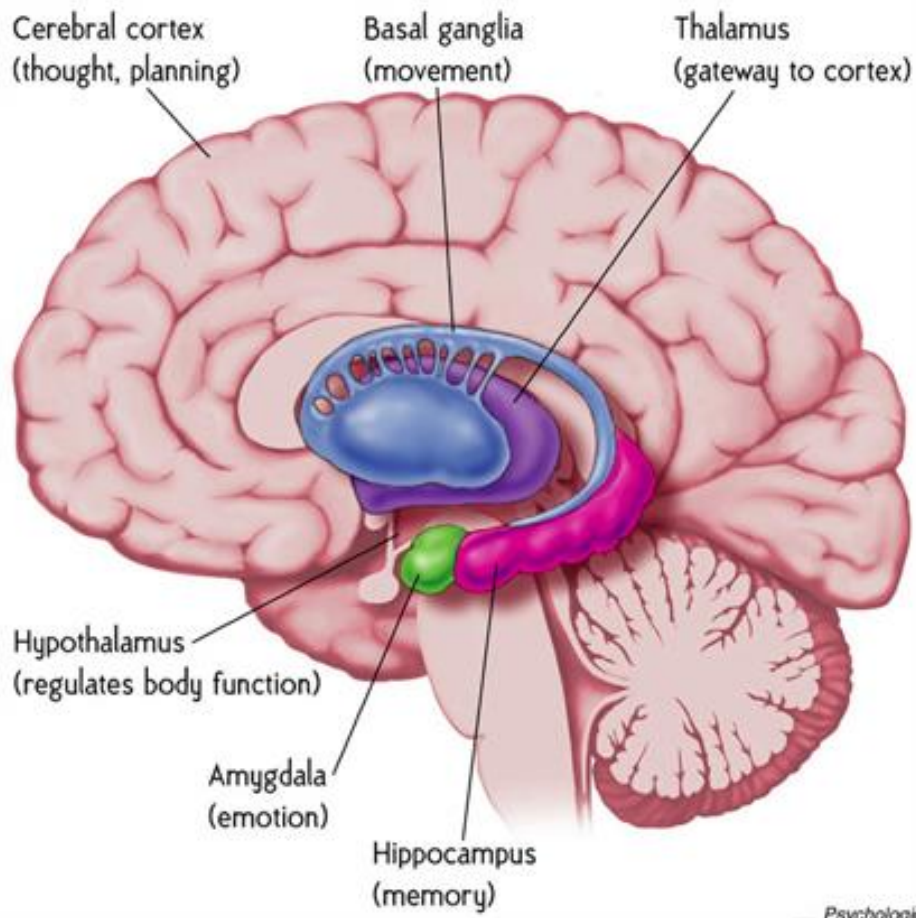
The brain as viewed from the underside and front. The thalamus and Corpus Striatum (Putamen, caudate and amygdala) have been splayed out to show detail.

Corpus Striatum



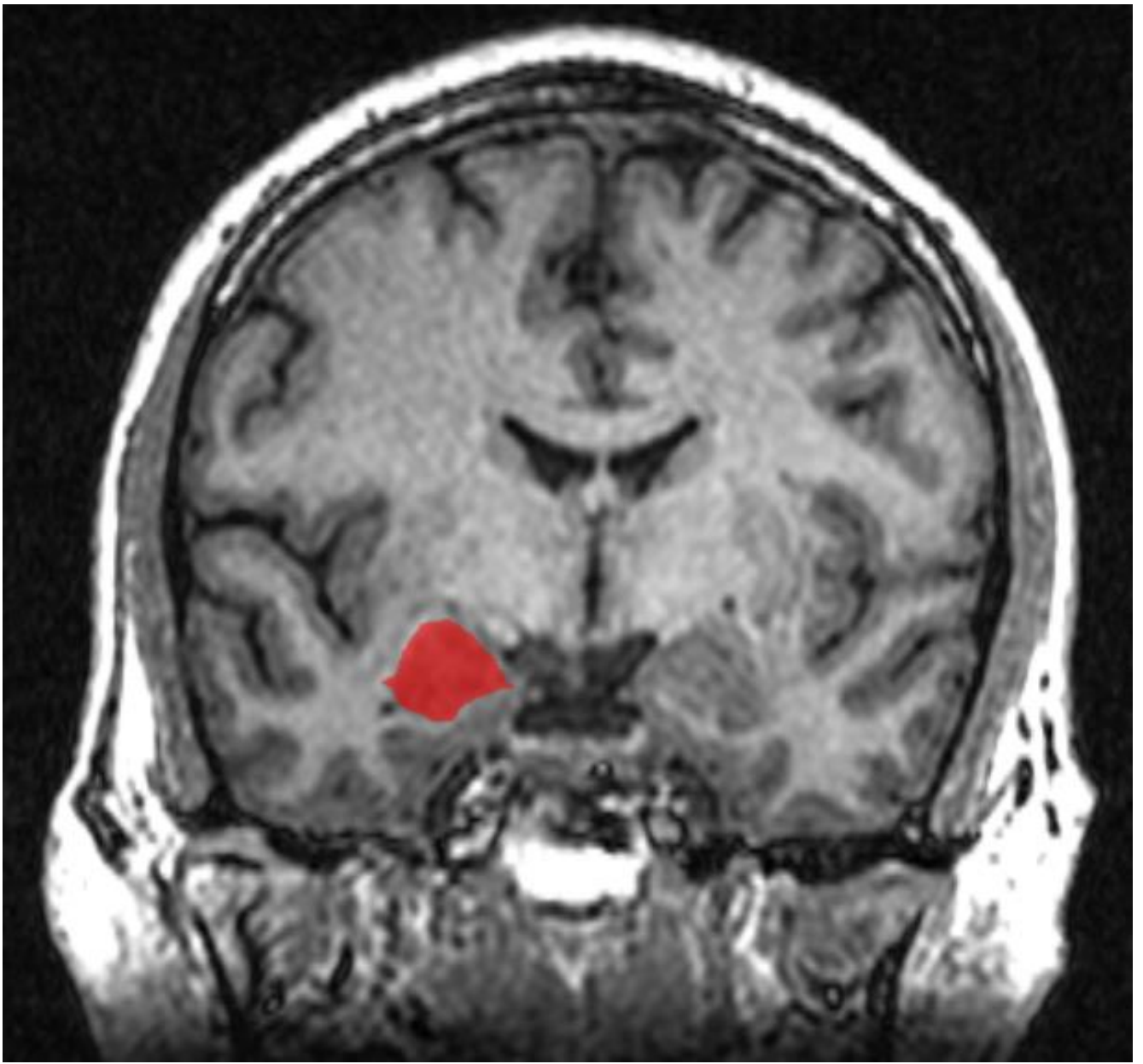
- Hippocampus:**
Learning and Memory
- Amygdala:**
Emotions and Aggression
- Hypothalamus:**
Hunger, Thirst
Temperature Control
- Thalamus:**
Relay Center for Sensory Information





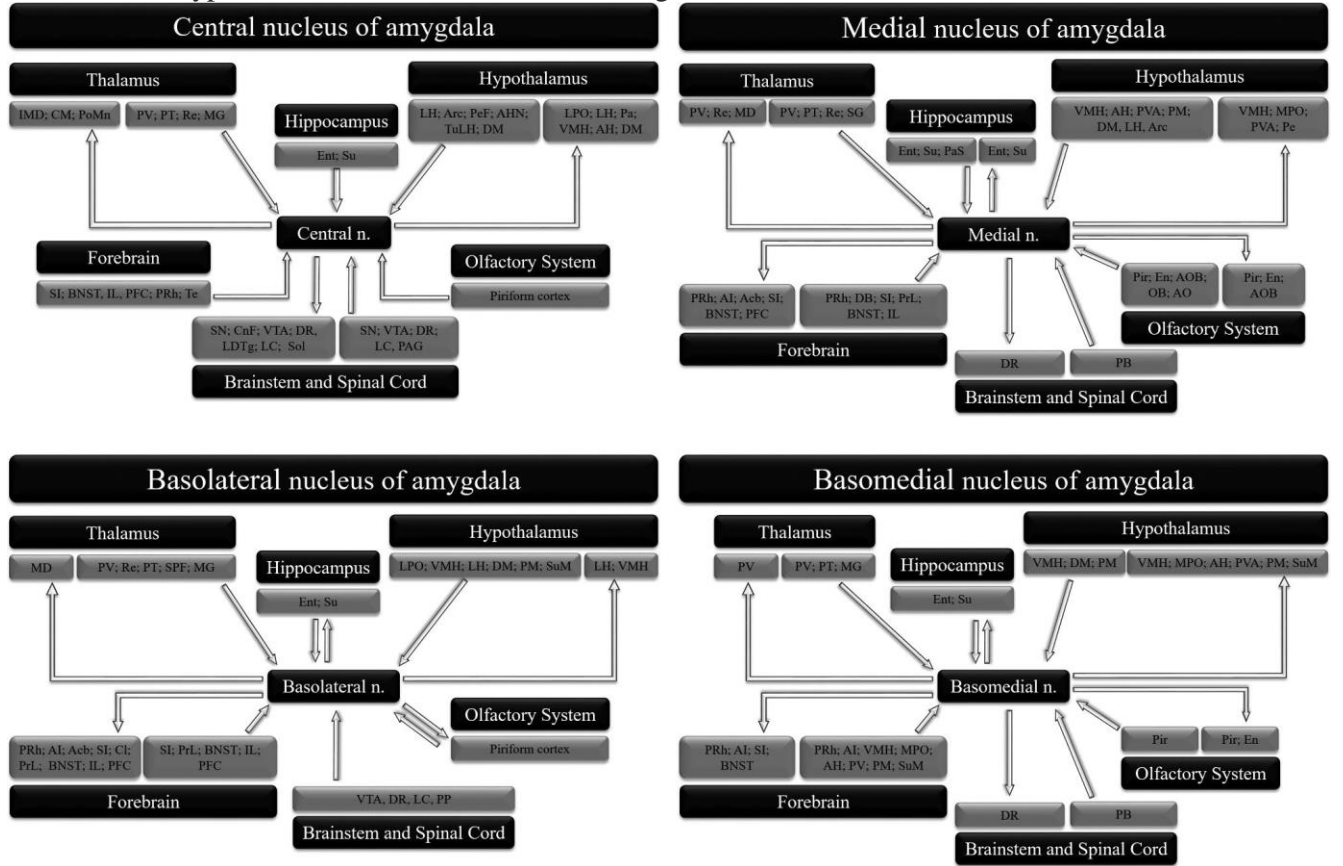
Psychological Science, 2nd Edition
Copyright © W. W. Norton & Company

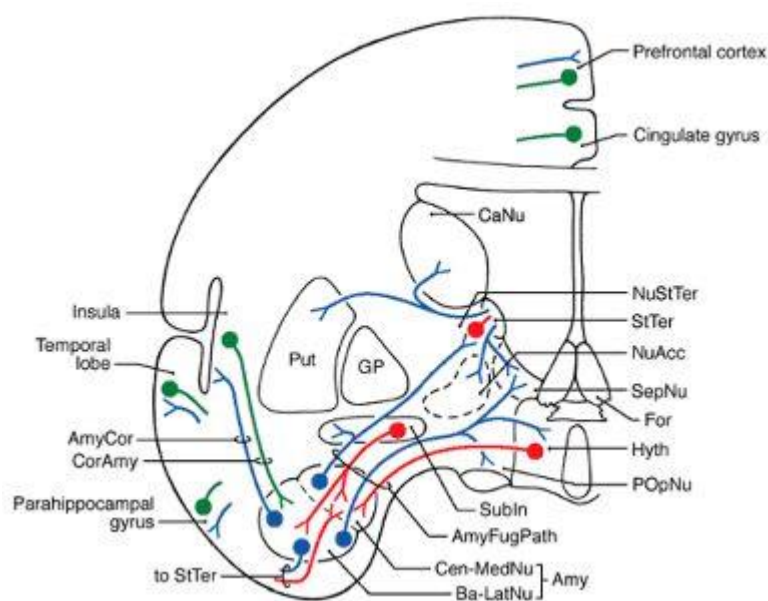
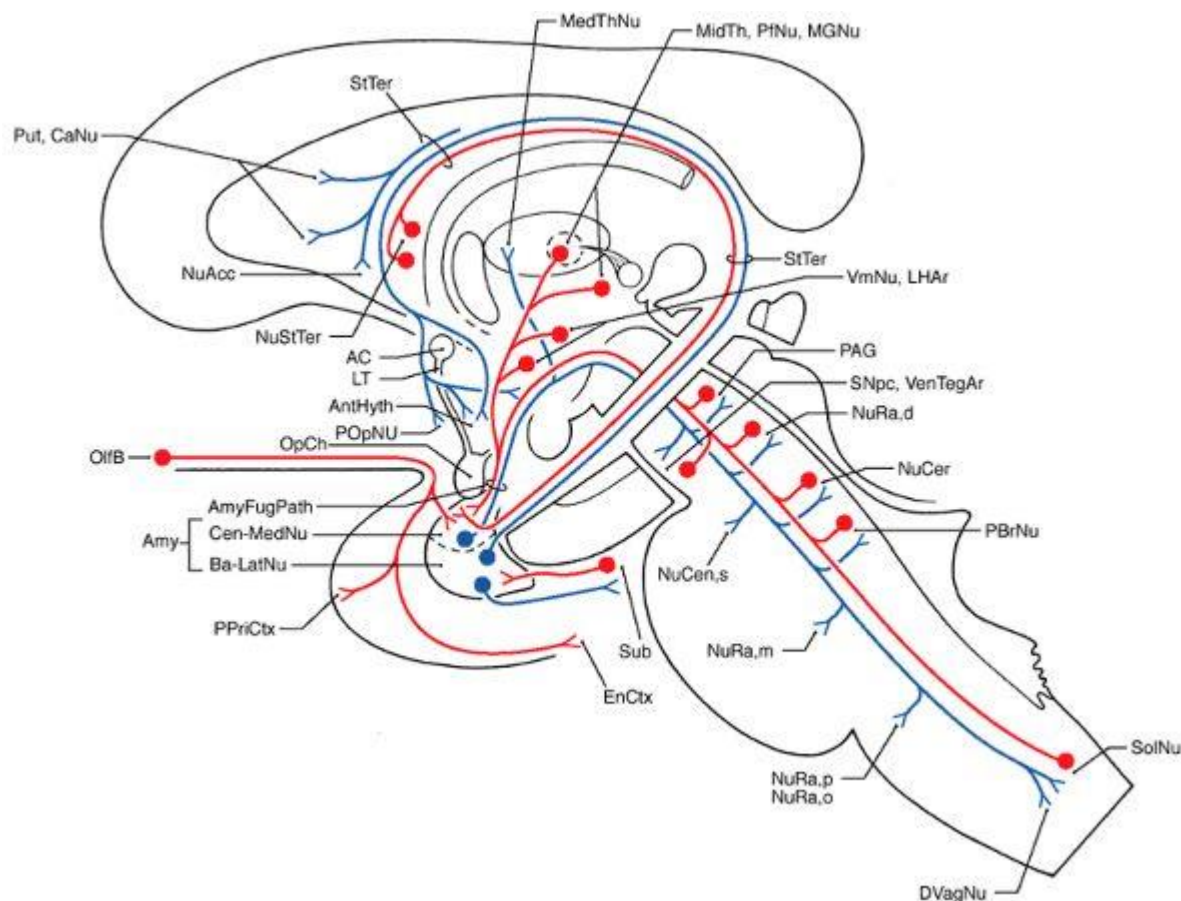
IMAGING



CONNECTIONS

Schematic representation of the main connections of the central, medial, basolateral, and basomedial amygdala nuclei. Acb: nucleus accumbens; AH: anterior hypothalamic area; AHN: anterior hypothalamic nucleus; AI: agranular insular cortex; AO: anterior olfactory nucleus; AOB: accessory olfactory bulb; Arc: arcuate nucleus of the hypothalamus; BNST: bed nucleus of the stria terminalis; Cl: claustrum; CM: central medial thalamic nucleus; CnF: cuneiform nucleus; DB: nucleus of the diagonal band; DM: dorsomedial hypothalamic nucleus; DR: dorsal raphe nucleus; En: endopiriform nucleus; Ent: entorhinal cortex; GP: globus pallidus; IL: infralimbic cortex; IMD: intermediodorsal thalamic nucleus; LC: locus coeruleus; LDTg: laterodorsal tegmental nucleus; LH: lateral hypothalamic area; LPO: lateral preoptic area; MD: mediodorsal thalamic nucleus; MG: medial geniculate nucleus; MPO: medial preoptic area; OB: olfactory bulb; Pa: paraventricular hypothalamic nucleus; PAG: periaqueductal gray; PaS: parasubiculum; PB: parabrachial nucleus; Pe: periventricular hypothalamic nucleus; PeF: perifornical nucleus; PFC: prefrontal cortex; Pir: piriform cortex; PM: premammillary nucleus; PoMn: posteromedial thalamic nucleus; PP: peripeduncular nucleus; PRh: perirhinal cortex; PrL: prelimbic cortex; PT: paratenial thalamic nucleus; PV: paraventricular nucleus of the thalamus; PVA: paraventricular nucleus of the hypothalamus; Re: reuniens thalamic nucleus; SG: supragenulate thalamic nucleus; SI: substantia innominate; SN: substantia nigra; Sol: nucleus of the solitary tract; SPF: subparafascicular thalamic nucleus; Su: subiculum; SuM: supramammillary nucleus; Te: temporal cortex; TuLH: tuberal region of lateral hypothalamus; VMH: ventromedial hypothalamic nucleus; VTA: ventral tegmental area.





- AC – Anterior commissure
- Amy – Amygdaloid nuclear complex
- AmyCor – Amygdalocortical fibers
- AmyFugPath – Amygdalofugal pathway
- AntHyth – Anterior hypothalamus
- Ba-LatNu – Basal and lateral nuclei
- CaNu – Caudate nucleus
- Cen-MedNu – Central, cortical and medial nuclei
- CorAmy – Corticoamygdaloid fibers
- DVagNu – Dorsal motor vagal nucleus
- EnCtx – Entorhinal cortex
- For – Fornix
- GP – Globus pallidus
- Hyth – Hypothalamus
- LT – Lamina terminalis
- LHAr – Lateral hypothalamic area
- MedThNu – Medial thalamic nuclei
- MGNu – Medial geniculate nucleus
- MidTh – Midline thalamic nuclei
- NuAcc – Nucleus accumbens
- NuCen, s – Nucleus centralis, superior
- NuCer – Nucleus ceruleus
- NuRa, d – Nucleus raphe, dorsalis
- NuRa, m – Nucleus raphe, magnus
- NuRa, o – Nucleus raphe, obscurus
- NuRa, p – Nucleus raphe, pallidus
- NuStTer – Nucleus of the stria terminalis
- OlfB – Olfactory bulb
- OpCh – Optic chiasm
- PAG – Periaqueductal (central) gray
- PBrNu – Parabrachial nuclei
- PfNu – Parafascicular nucleus
- Pi – Pineal
- POpNu – Preoptic nucleus
- PPriCtx – Prepiriform cortex
- Put – Putamen
- SepNu – Septal nuclei
- SNpc – Substantia nigra, pars compacta
- SolNu – Solitary nucleus
- StTer – Stria terminalis
- Sub – Subiculum
- Subln – Substantia innominata
- VenTegAr – Ventral tegmental area
- VmNu – Ventromedial hypothalamic nucleus

FUNCTION

- amygdala plays a critical role in processing threatening stimuli and mediating autonomic, neuroendocrine, and behavioral responses that enable an organism to adapt to social and environmental challenges.

LESIONS

Etiology of lesions:

- 1) trauma to temporal lobes
- 2) herpes simplex encephalitis
- 3) bilateral temporal lobe epileptic surgery
- 4) CNS degenerative disorders (e.g. Alzheimer disease, Pick disease).

Clinically - behavioral changes - **KLÜVER-BUCY syndrome:**

- 1) visual, tactile, and auditory agnosia → hypermetamorphosis (intense desire to explore immediate environment) → hyperorality

- 2) hyperphagia or other dietary manifestations
- 3) placidity
- 4) hypersexuality (in form of comments, suggestions, and attempts to make sexual contact (e.g. touching) rather than in actual intercourse or masturbation).

BIBLIOGRAPHY for ch. "Limbic System" → follow this [LINK >>](#)