

# Chapter 15

## NERVOUS SYSTEM AND PSYCHOLOGICAL DISORDERS

# Lesson 15.1

1. State the function of the nervous system and analyze associated terms.
2. Write the meaning of word parts associated with the nervous system and use them to build and analyze terms.
3. Distinguish between the structures of the central nervous system and the peripheral nervous system and define the terms associated with these structures.
4. Write the names of the five sense organs and define the terms associated with these structures.

# Function First!

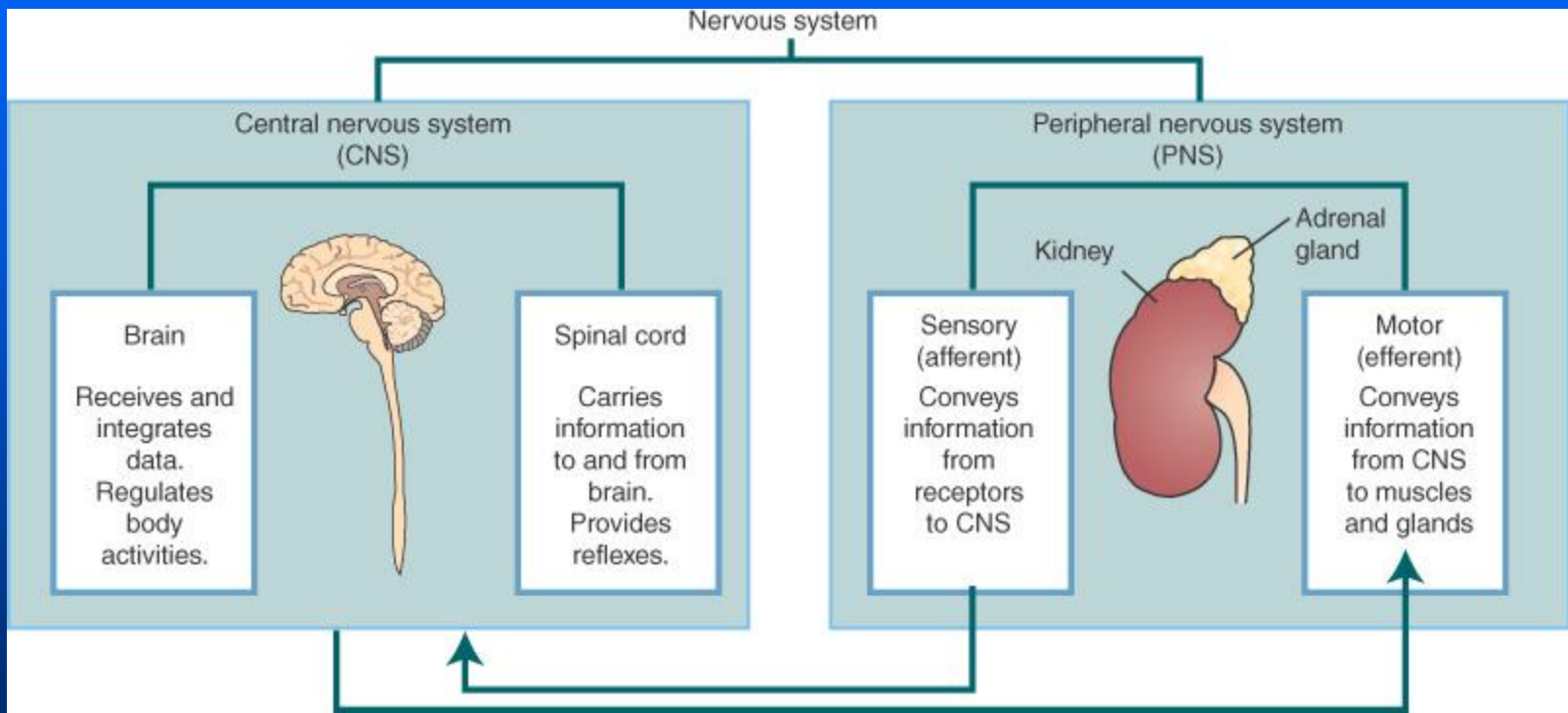
## *The Nervous System*

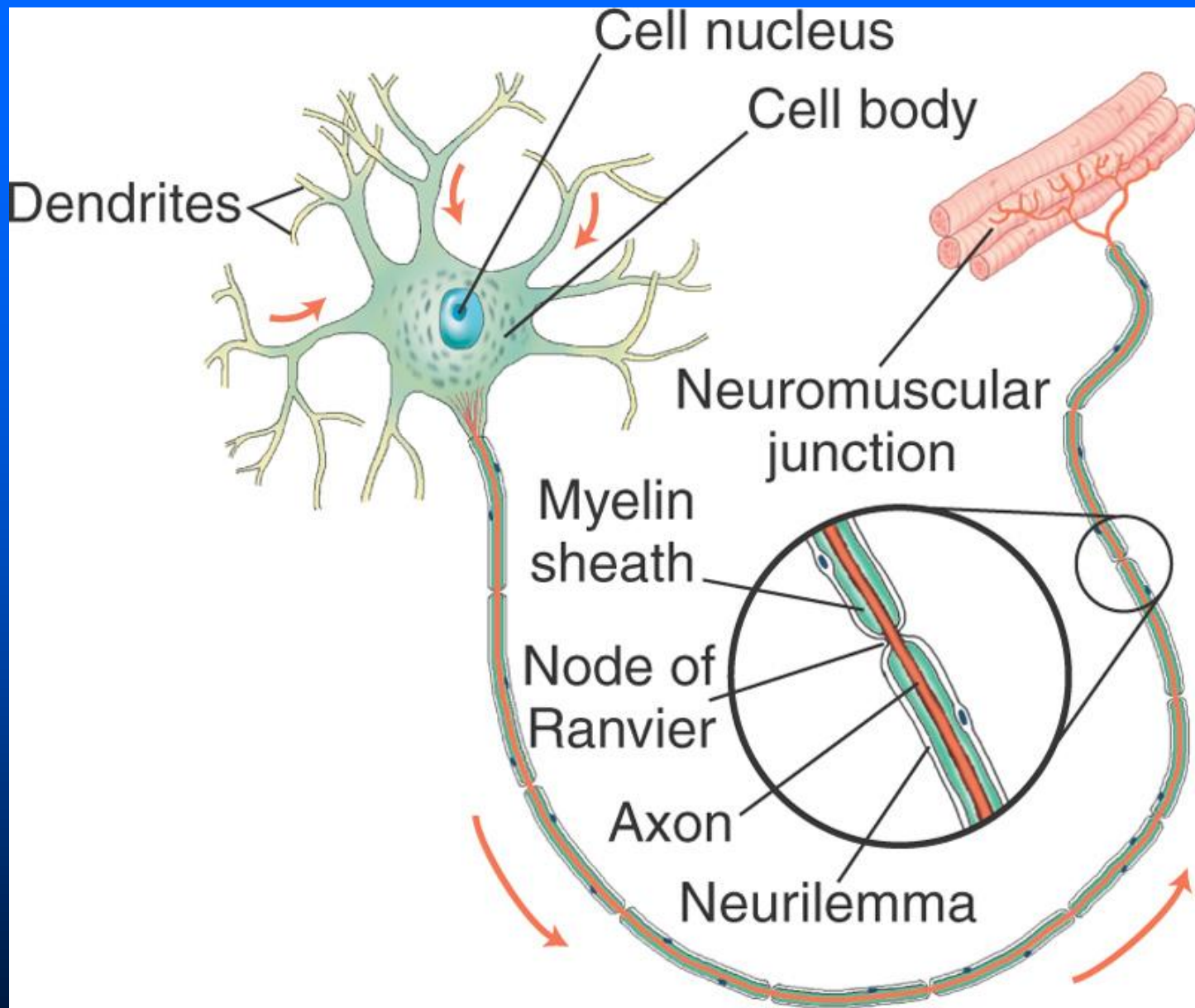
- is the control center and communications network
- stimulates movement, senses changes both within and outside the body
- provides us with thought, learning, and memory
- maintains homeostasis with the help of the hormonal system
- *has sensory, integrative, and motor components*

# Organization of the Nervous System

- Central Nervous System (CNS) =  
brain + spinal cord
- Peripheral Nervous System (PNS) =  
nerves that connect the CNS to receptors, glands  
and muscles
- Types of cells = neurons + neuroglia





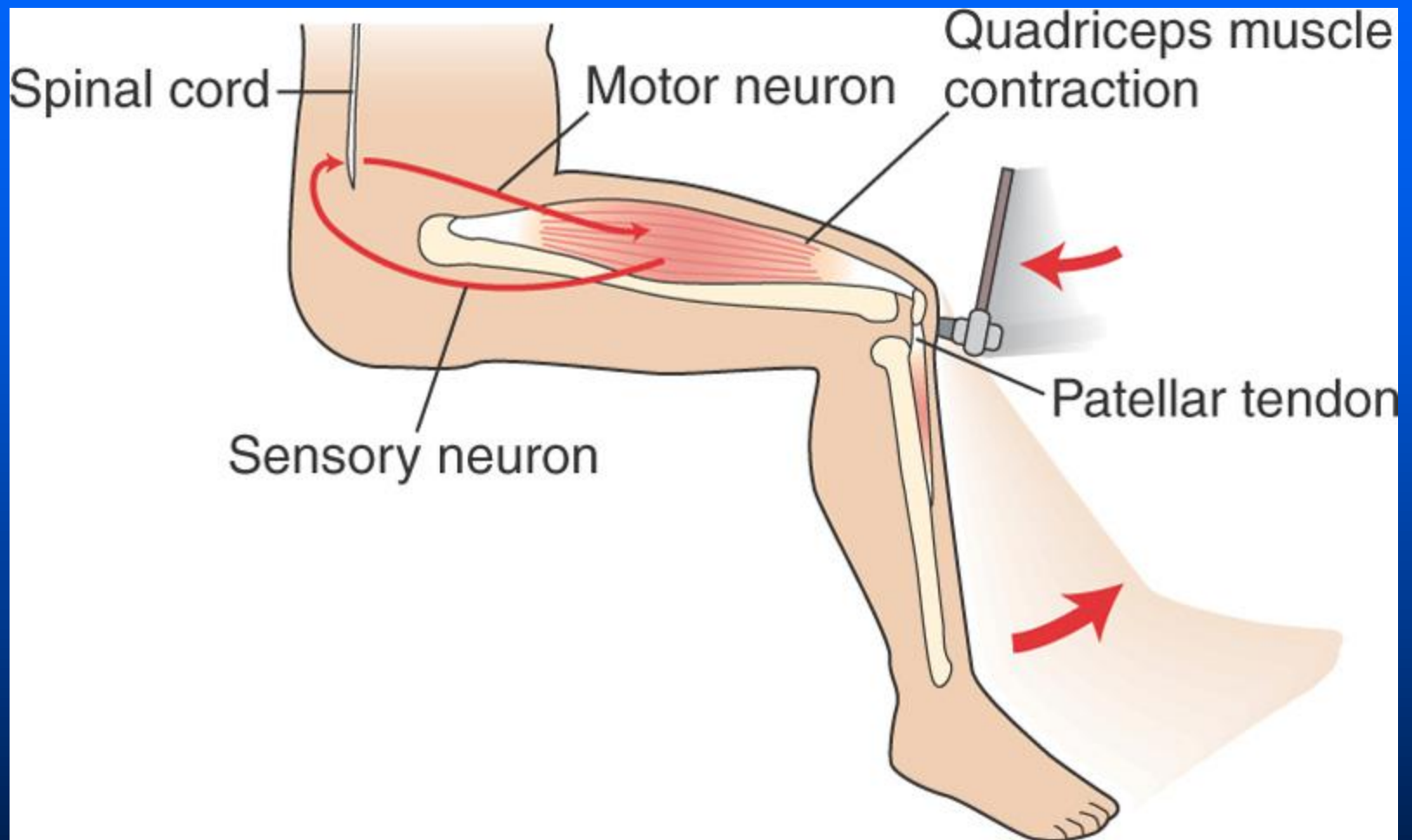


# Word Parts: Neurons

dendr(o)	tree
nerv(o), neur(o)	nerve
gli(o)	neuroglia or a sticky substance

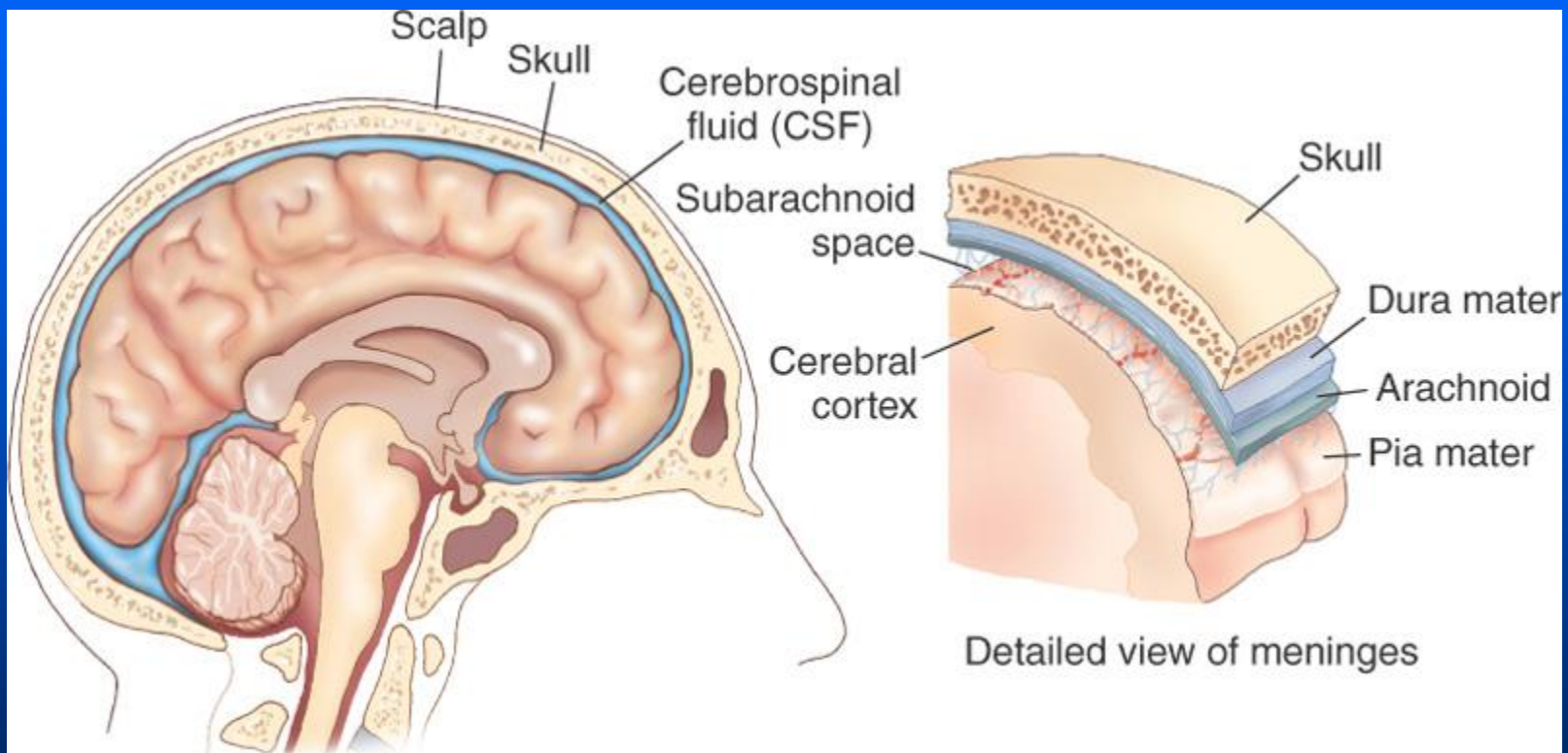
# Neurotransmitters

- acetylcholine (acetylcholinesterase)
- dopamine
- serotonin
- endorphins

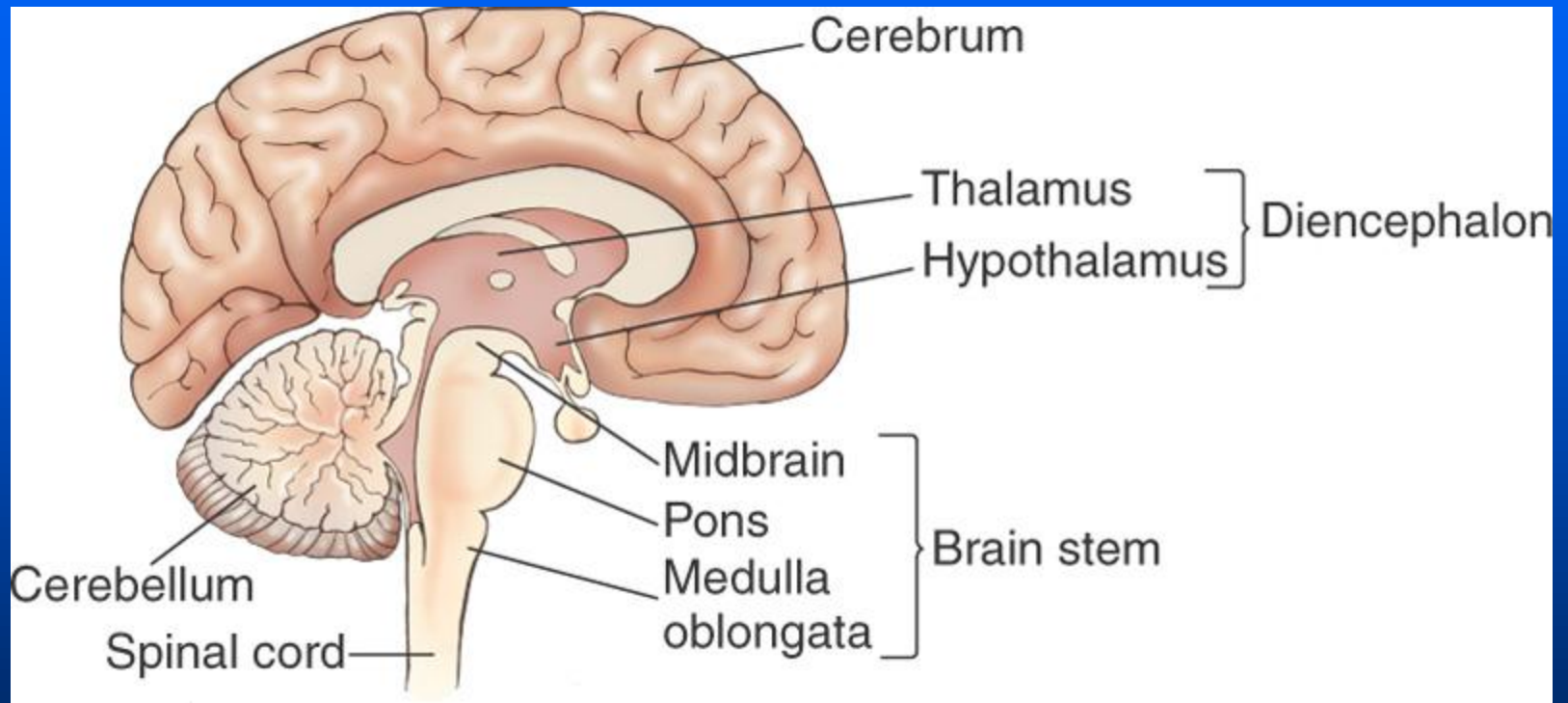


# Protection: Central Nervous System

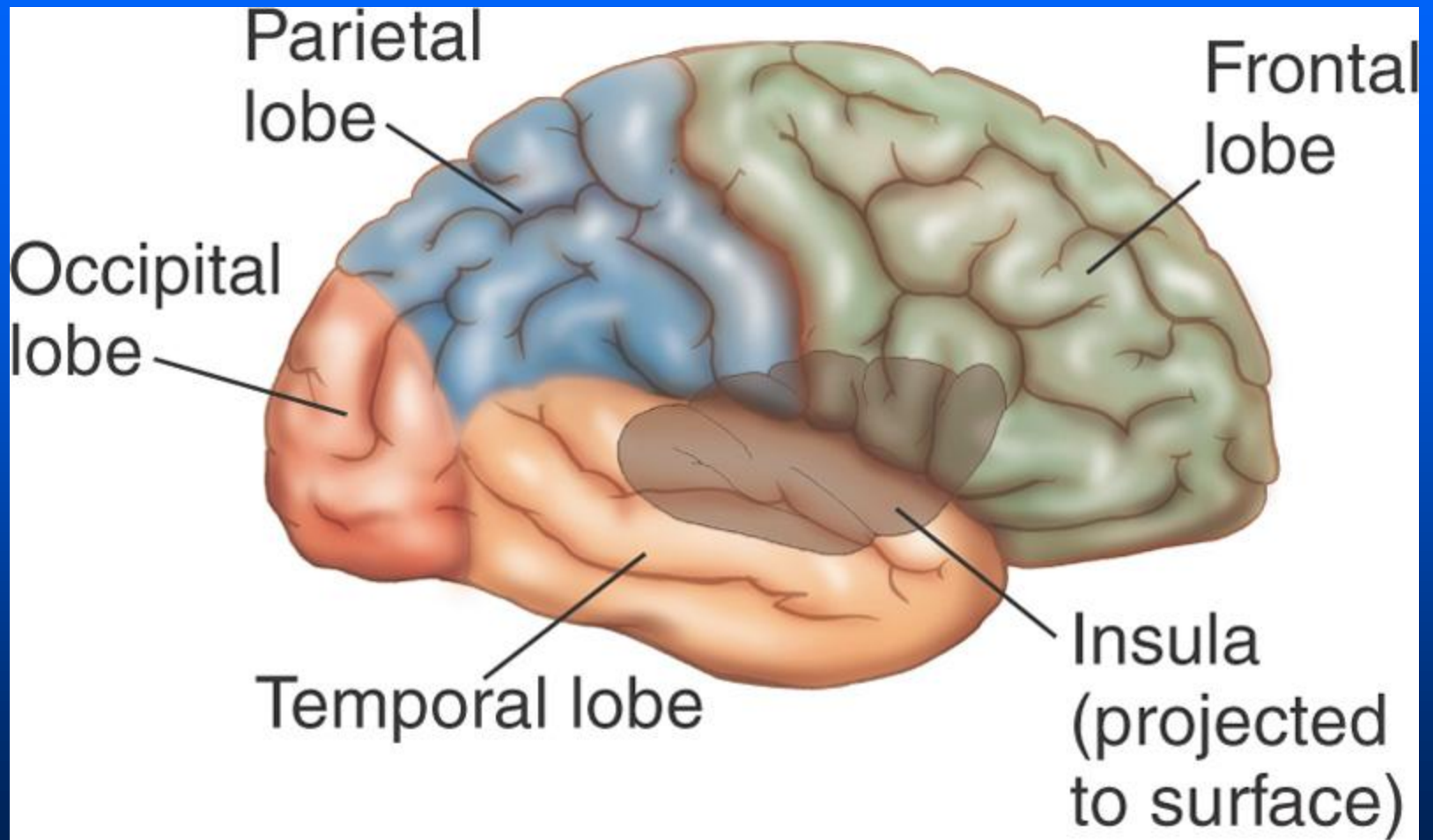
- brain: cranium
- spinal cord: vertebrae
- both: meninges (meninx) and cerebrospinal fluid (CSF)

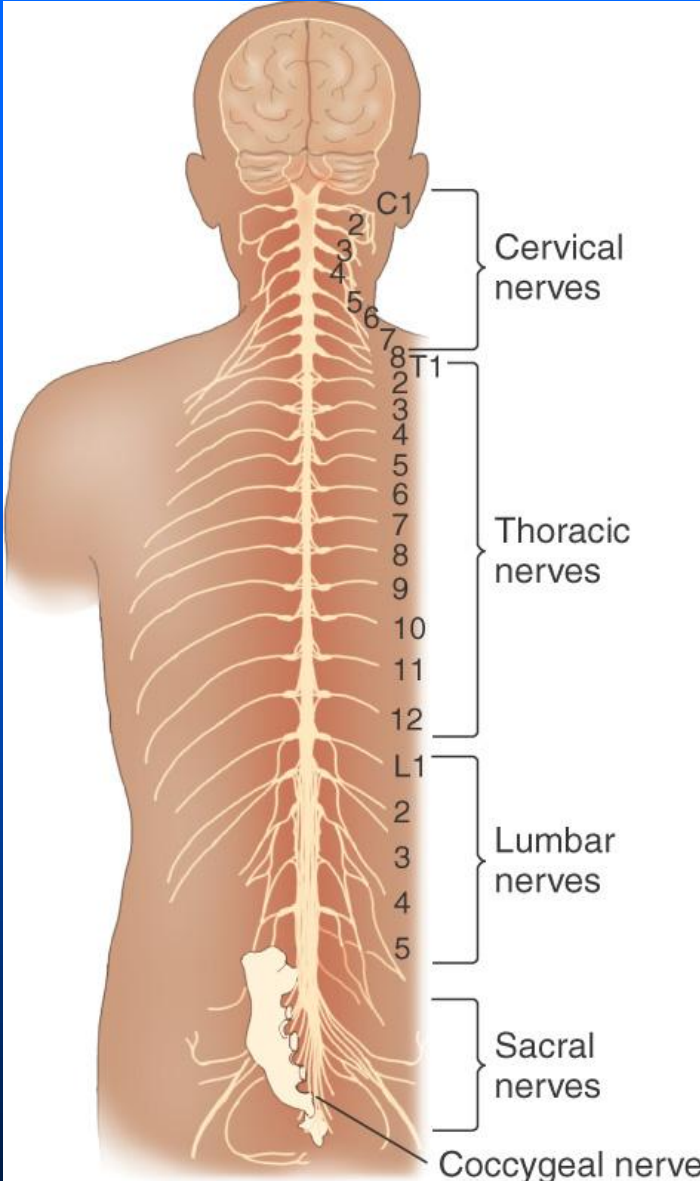












# Word Parts: Structures

cerebell(o)

cerebellum

cerebr(o), encephal(o)

brain (cerebr(o)  
sometimes means  
cerebrum)

myel(o)

spinal cord  
(sometimes, bone  
marrow)

mening(i), mening(o)

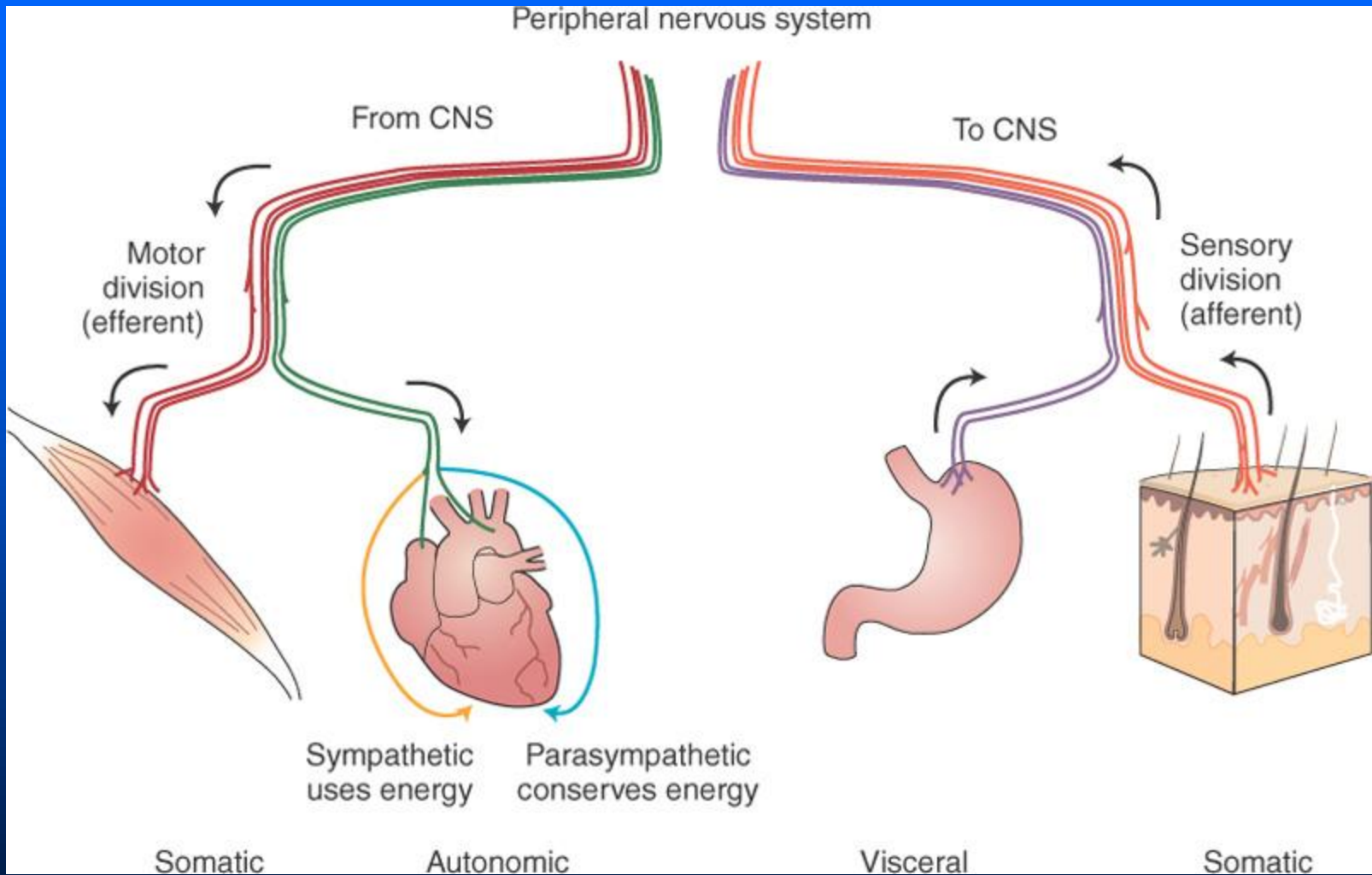
meninges

arachn(o)

spider or arachnoid  
membrane

# Peripheral Nervous System

- afferent (sensory)
- efferent (motor)
- sense organs
- receptors = sensory nerve endings



# Word Parts: Receptors

chem(o)

chemical

mechan(o)

mechanical

phot(o)

light

therm(o)

heat

noc(i)

cause harm, injury, or pain

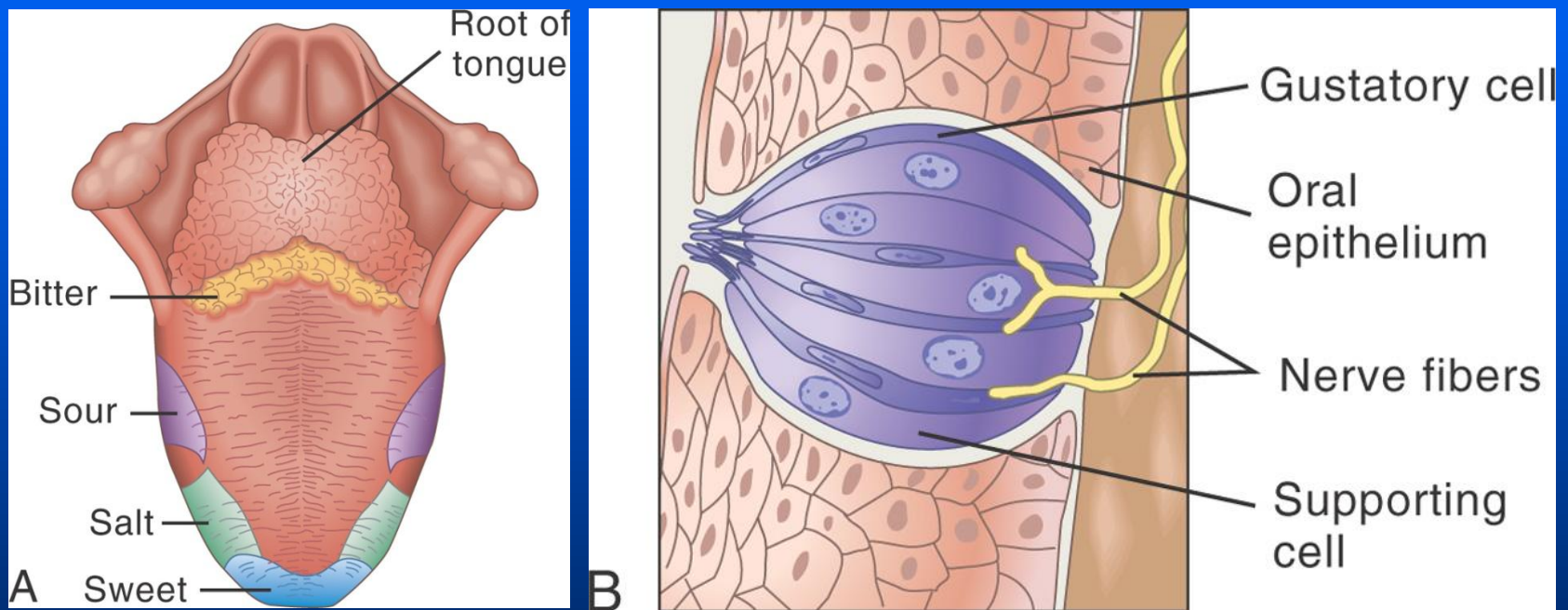


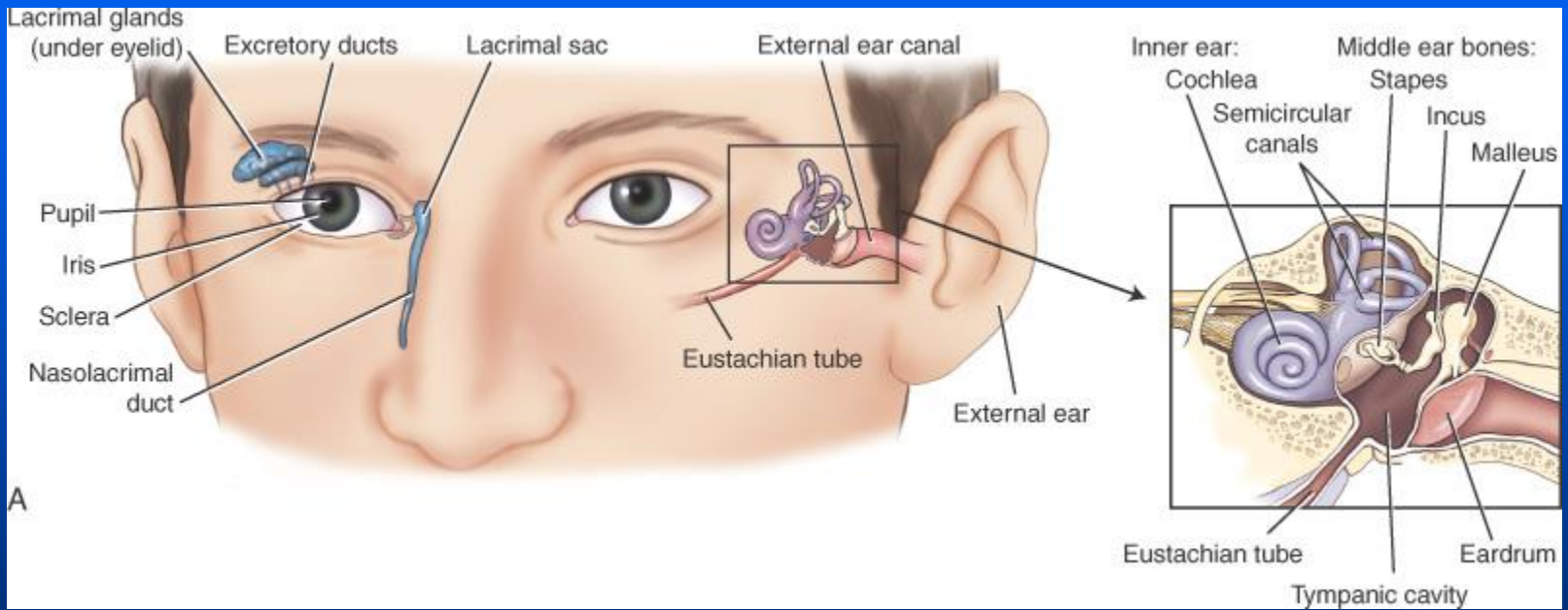
Figure 15-9A and B From Thibodeau GA and Patton KT: *Anatomy & Physiology*, ed 6, 2007, St. Louis, Mosby.

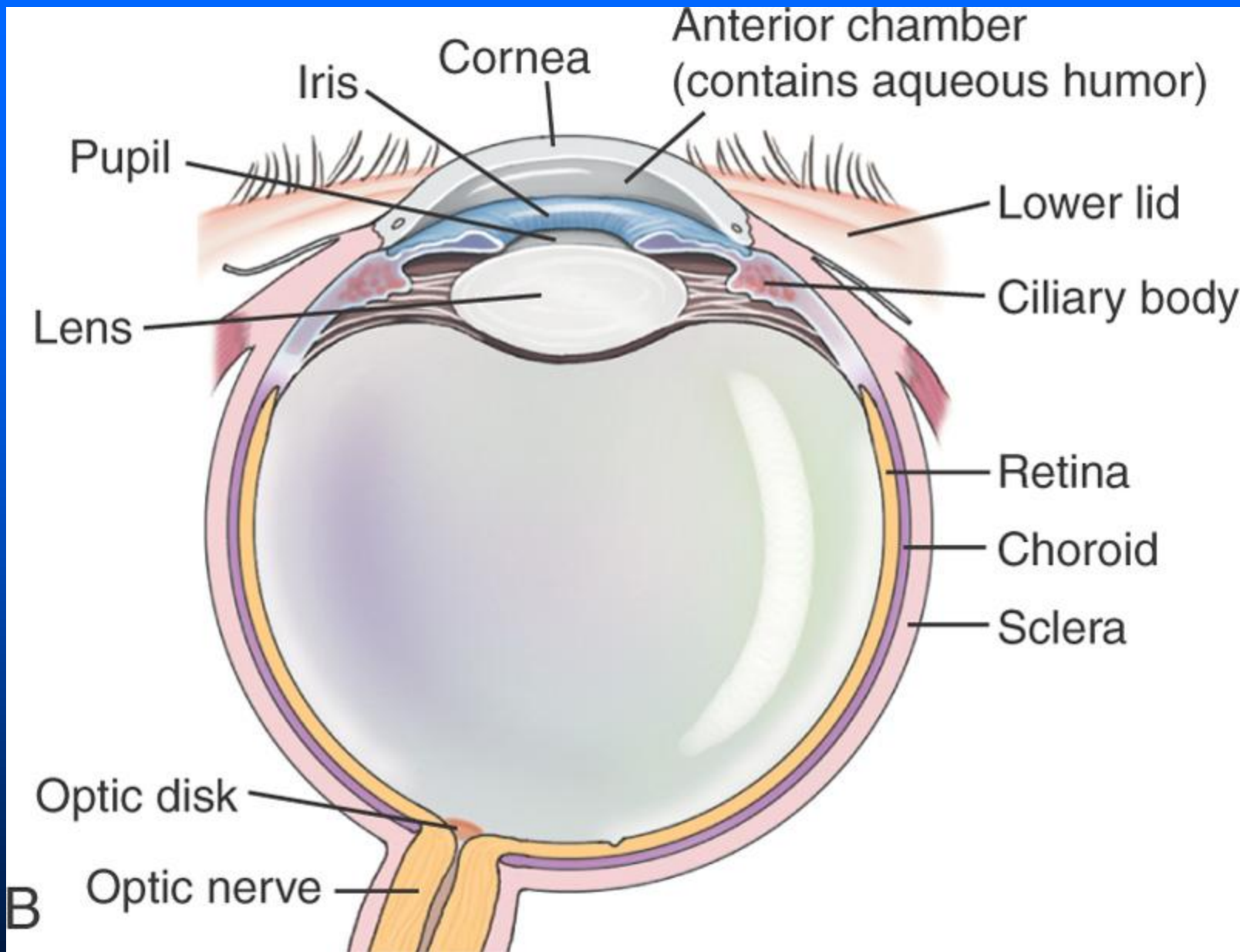


# Word Parts and Terminology: Eye

- ocul(o), ophthalm(o)
- ocular, ophthalmic
- intraocular, interocular, extraocular







## Word Parts: Eye, (cont.)

ir(o), irid(o)

iris

kerat(o)

cornea; hard, horny

dacry(o), lacrim(o)

tear

opt(o), optic(o)

vision

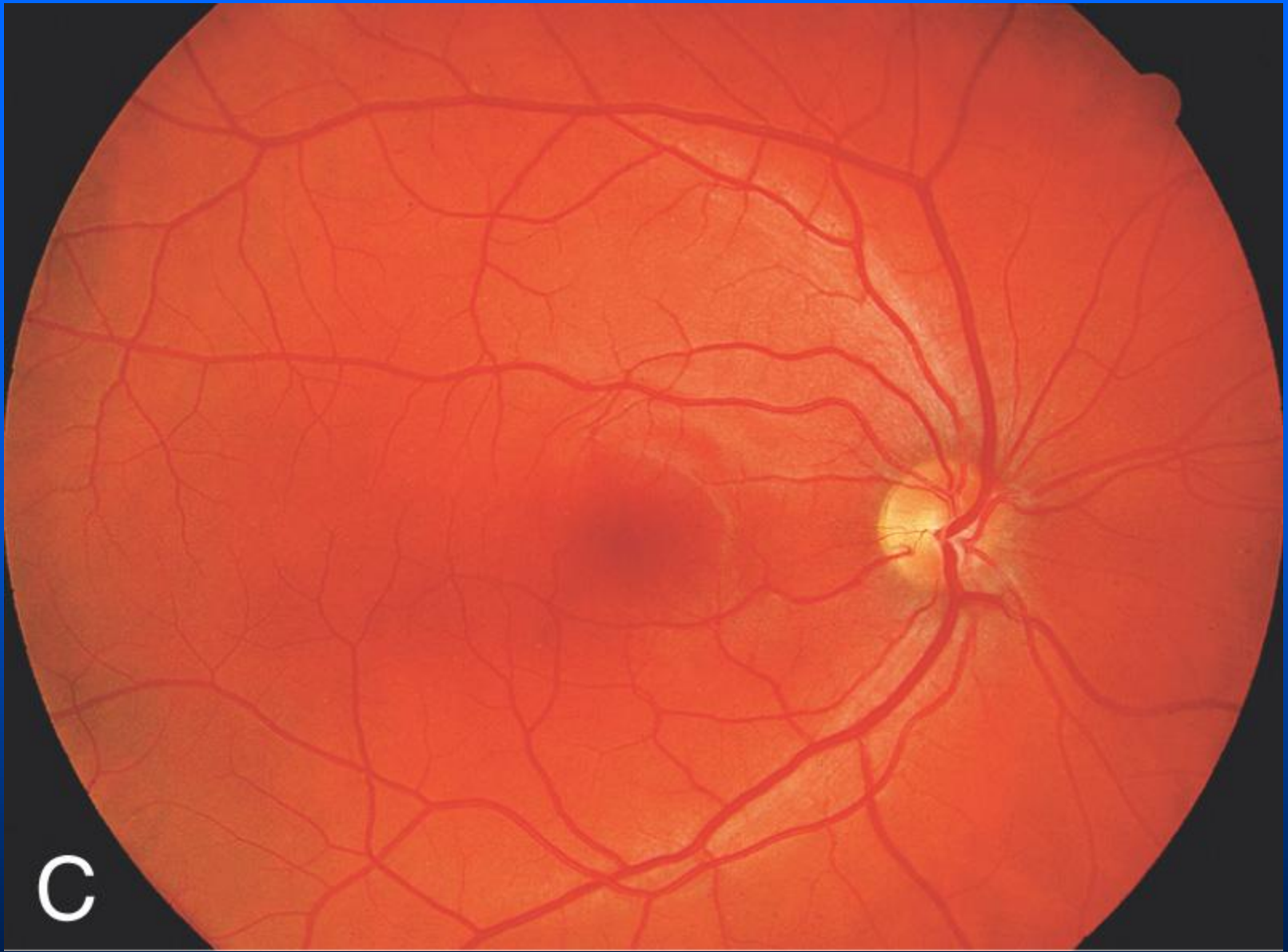
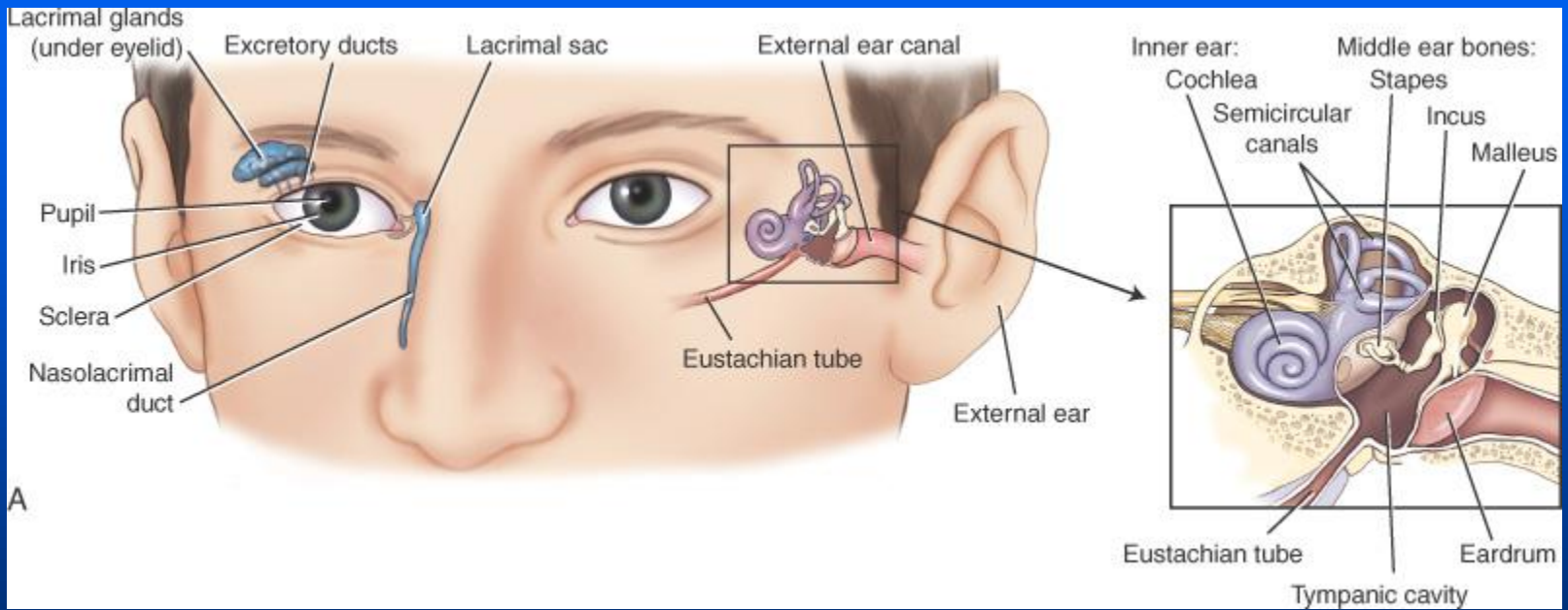


Figure 15-10C From Palay DA, Krachmer JH, editors: *Ophthalmology for the primary care physician*, ed 2, St Louis, 2005, Mosby.



# Word Parts: Ear

audi(o)      hearing

ot(o)        ear

# Terminology: Sense of Smell

- olfaction, olfactory
- anosmia, hyperosmia



# Quick Quiz!

Which part of the nervous system contains the brain and spinal cord?

- A. peripheral nervous system
- B. autonomic nervous system
- C. cardiac nervous system
- D. central nervous system



# Lesson 15.2

5. Write the names of the diagnostic tests and procedures for assessment of the nervous system when given their descriptions or match the procedures with the descriptions.
6. Write the names of nervous system pathologies when given their descriptions or match the pathologies with their descriptions.
7. Write the names of eye and ear pathologies when given their descriptions or match the pathologies with their descriptions.
8. Write the names of psychological disorders when given their descriptions or match the disorders with their descriptions.

# Diagnostic Tests and Procedures

- deep tendon reflex (DTR)
- superficial reflex
- CSF analysis
- lumbar puncture

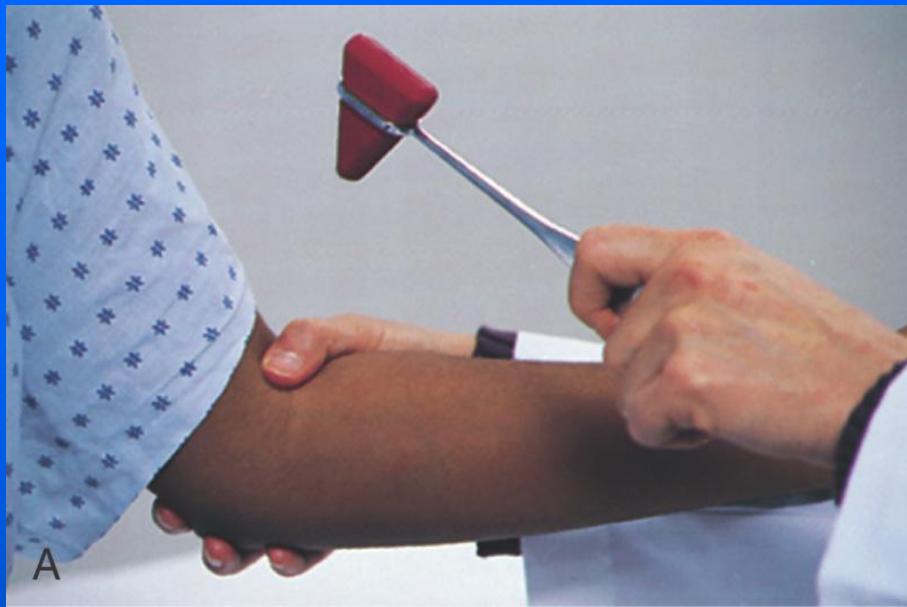


Figure 15-11 From Lewis SM, Heitkemper MM, Dirksen SR, O'Brien PG and Bucher L: *Medical-surgical nursing: assessment and management of clinical problems*, ed 7, St. Louis, 2007, Mosby.



Figure 15-12 From Chipps EM, Clanin NJ, Campbell VG: *Neurologic disorders*, St Louis, 1992, Mosby.

# Diagnostic Tests and Procedures, (cont.)

- plain x-ray imaging, CT, MRI
- echoencephalography
- positron emission tomography (PET)
- encephalography
- myelography
- brain scan



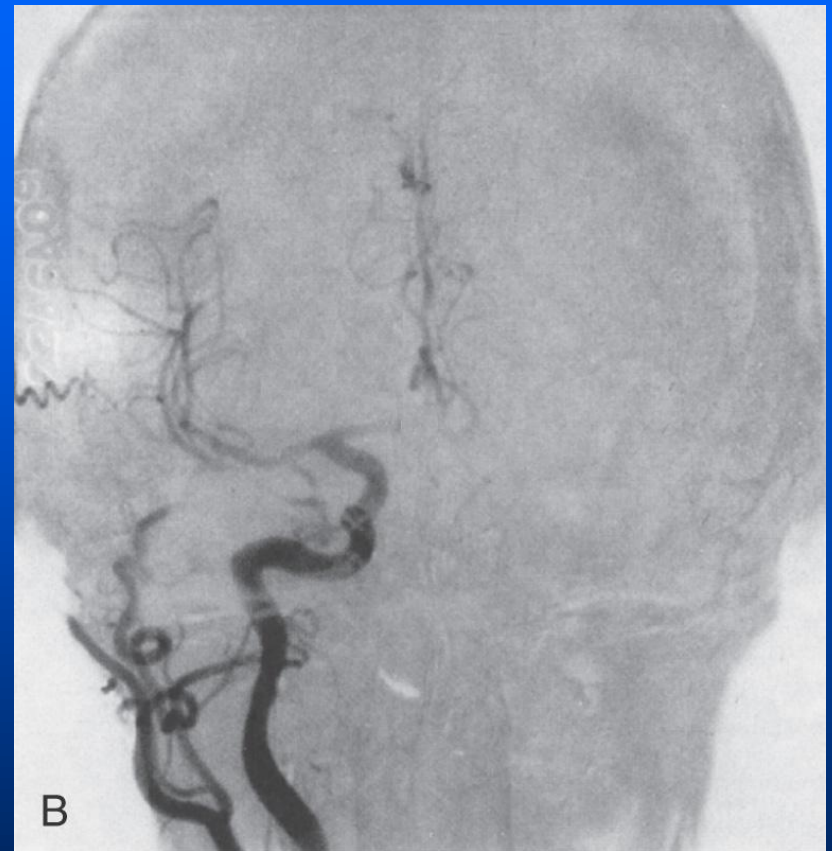
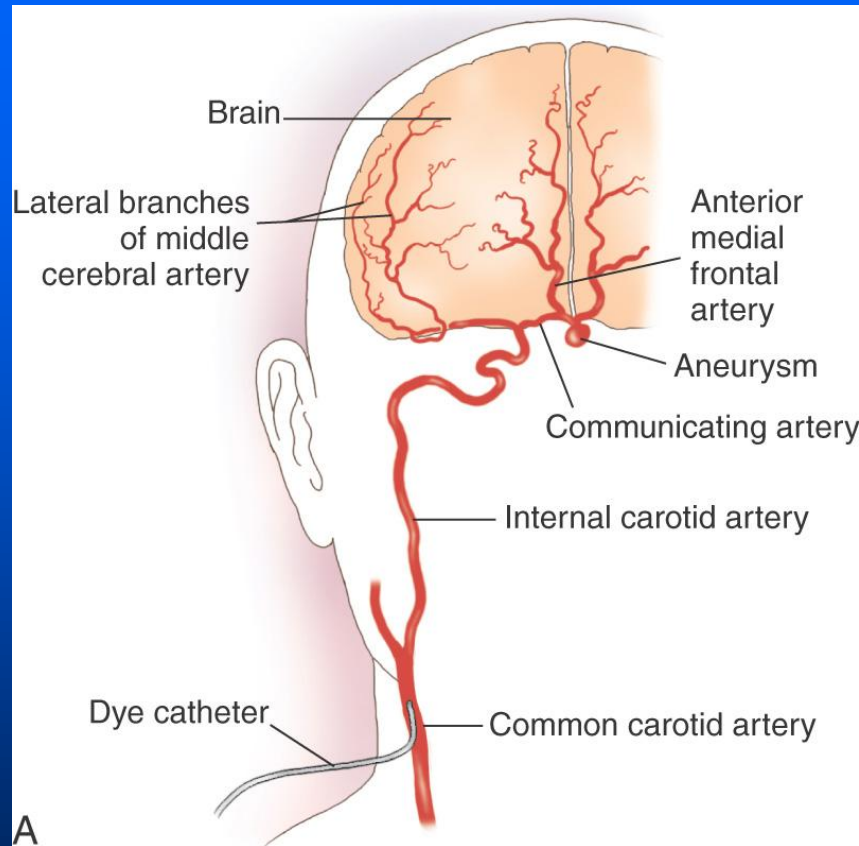


Figure 15-13 From Polaski AL, Tatro SE: *Luckmann's core principles and practice of medical-surgical nursing*, Philadelphia, 1996, Saunders.

# Diagnostic Tests and Procedures, (cont.)

- ophthalmoscopy, ophthalmoscope, ophthalmometer
- otoscopy
- audiometer, audiogram
- sleep studies

# Pathologies

- dyslexia
- algesia, hyperalgesia, hypoalgesia
- paresthesia, pseudesthesia

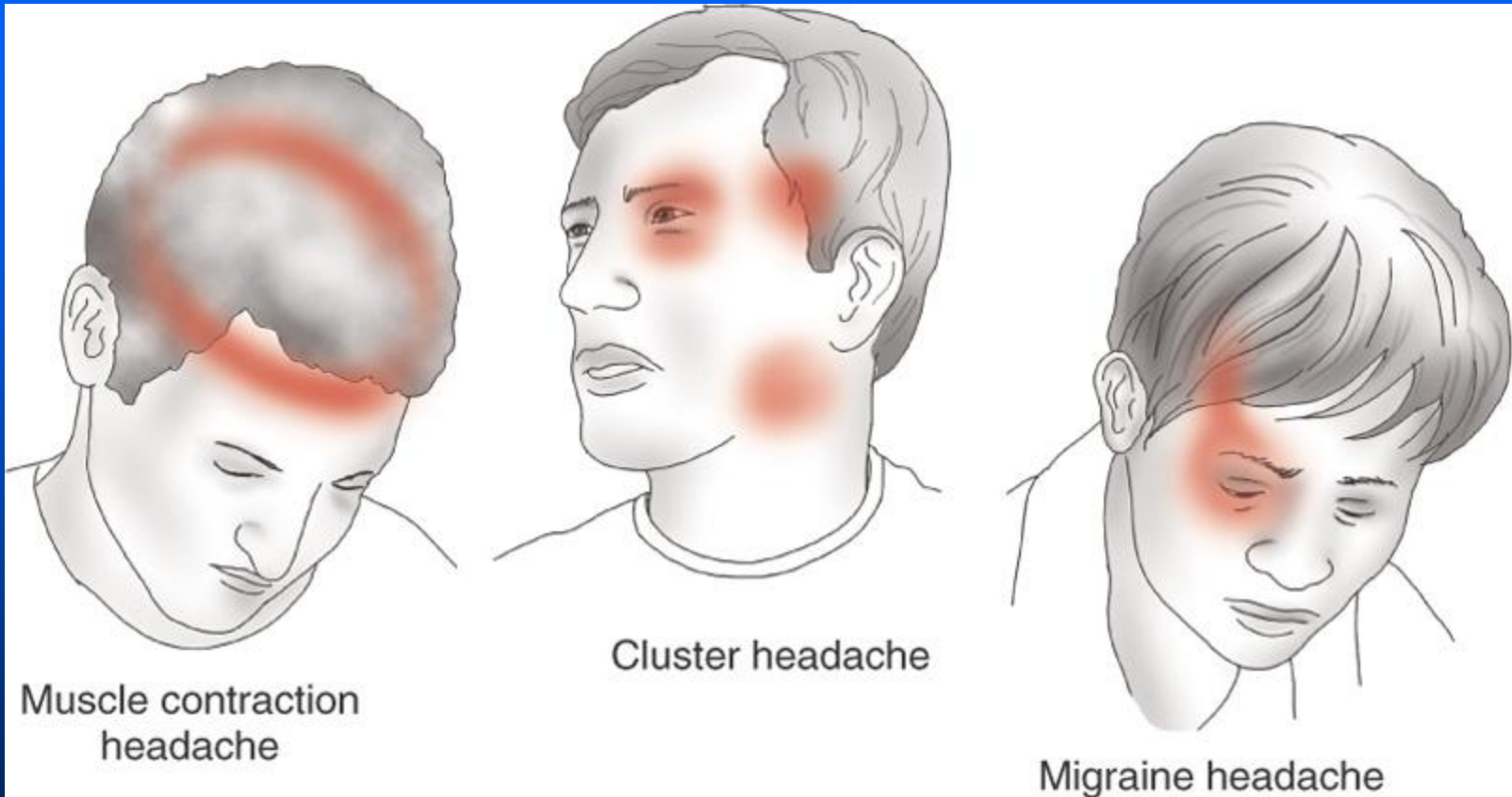


# Pathology Word Parts

pseud(o)	false
-asthenia	weakness
-esthesia	sensitivity to pain
-lexia	words, phrases

# Pathologies, (cont.)

- neuralgia, polyneuralgia
- polyneuropathy, polyneuritis
- sciatica, peripheral neuropathy
- carpopoptosis
- cephalalgia, cephalgia

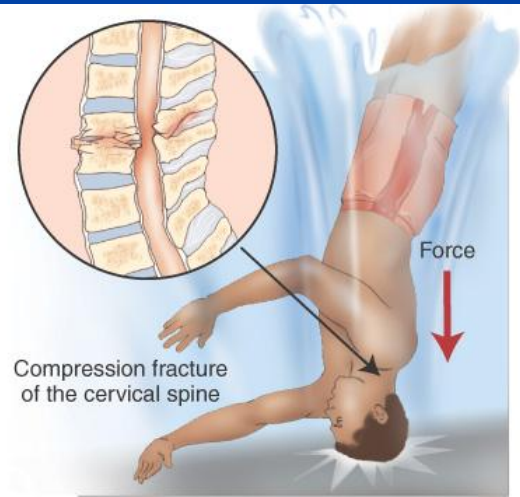
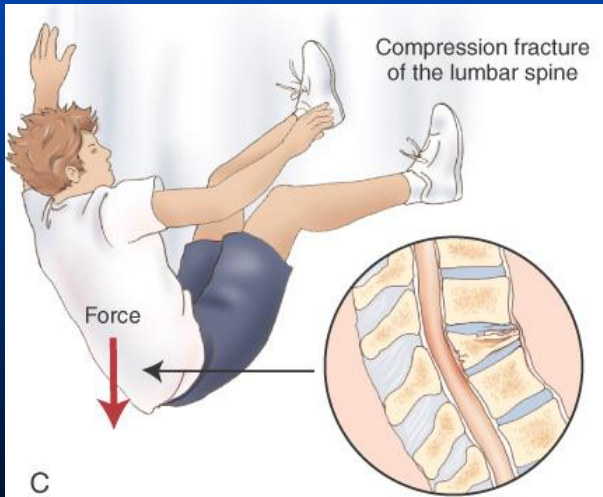
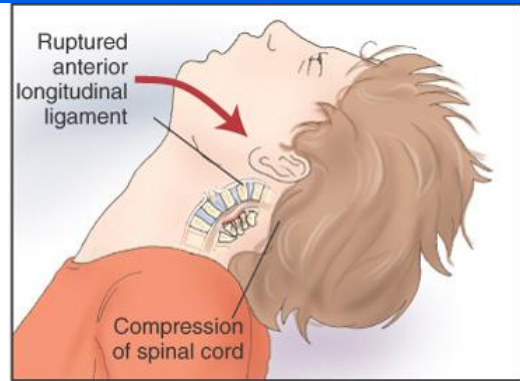
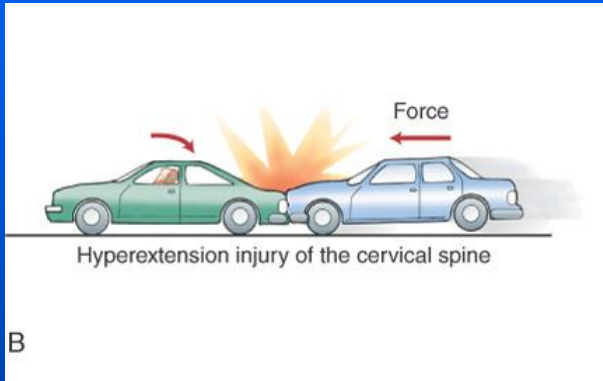
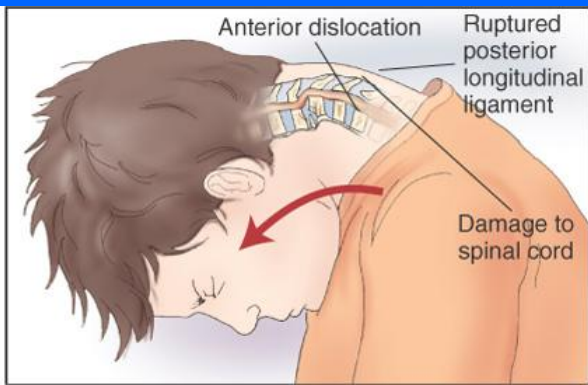
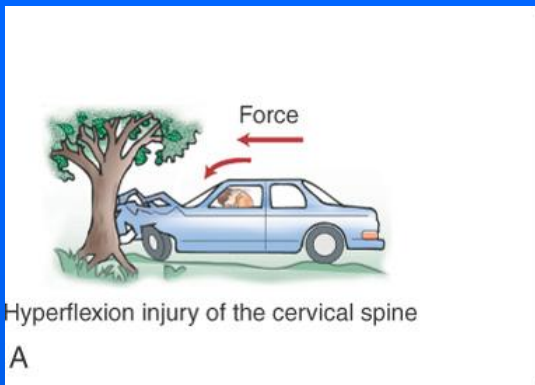


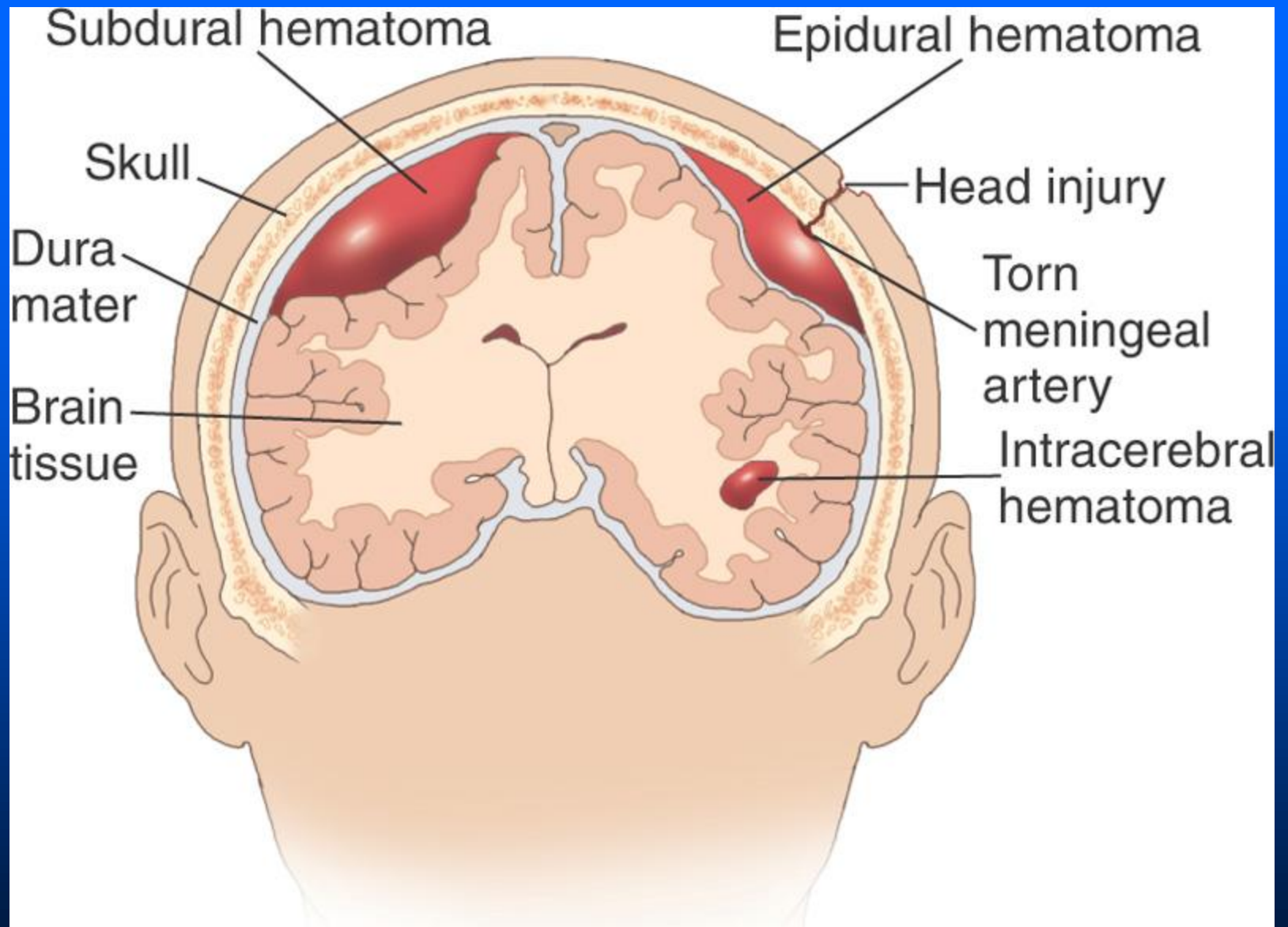
# Pathologies, (cont.): *Trauma*

- craniocerebral trauma
- concussion, contusion
- aphasia, dysphasia, dysarthria
- semiconscious, stupor, coma, semicoma

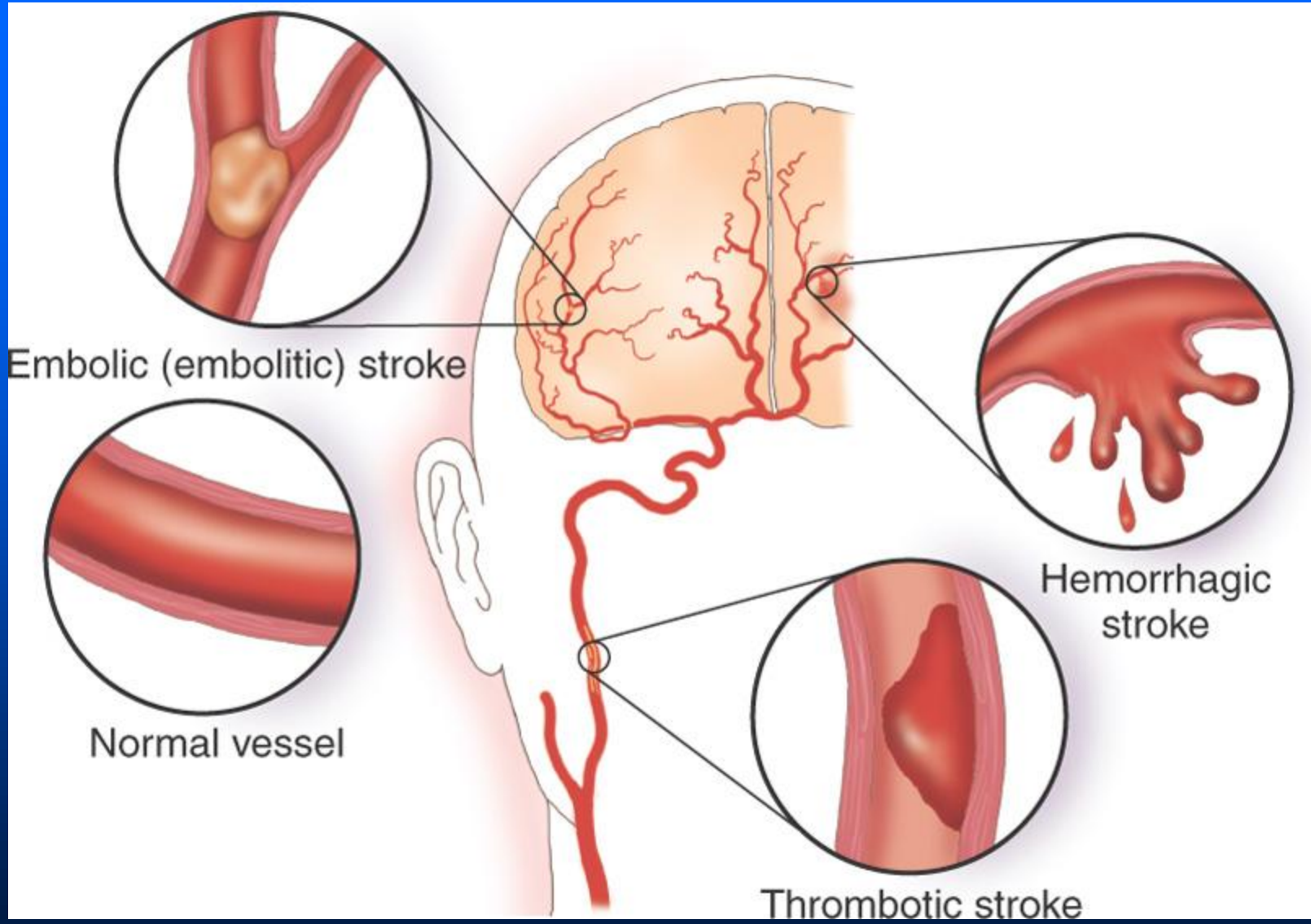
# Glasgow Coma Scale

- Eyes open 1-4
- Best verbal response 1-5
- Best motor response 1-6









# Quick Quiz!

Which term means difficult, poorly articulated speech?

- a. dyslexia
- b. aphasia
- c. dysarthria
- d. carpoptosis

# Pathologies, (cont.):

## *Paralysis*

- hemiplegia, diplegia, paraplegia
- quadriplegia, monoplegia
- Bell palsy



Figure 15-18 From Zitelli BJ, Davis HW: *Atlas of pediatric physical diagnosis*, ed 3, St. Louis, 1997, Mosby.

# Pathologies, (cont.): *Congenital Disorders*

- meningocele, meningomyelocele
- cerebral palsy
- Huntington chorea
- anotia

# Pathologies, (cont.): *Infections*

- meningitis, encephalitis
- encephalomeningitis, encephalomyelitis
- cerebellitis
- ventriculitis

# Pathologies: *Infections*, (cont.)

- tetanus
- botulism
- poliomyelitis
- rabies (hydrophobia)



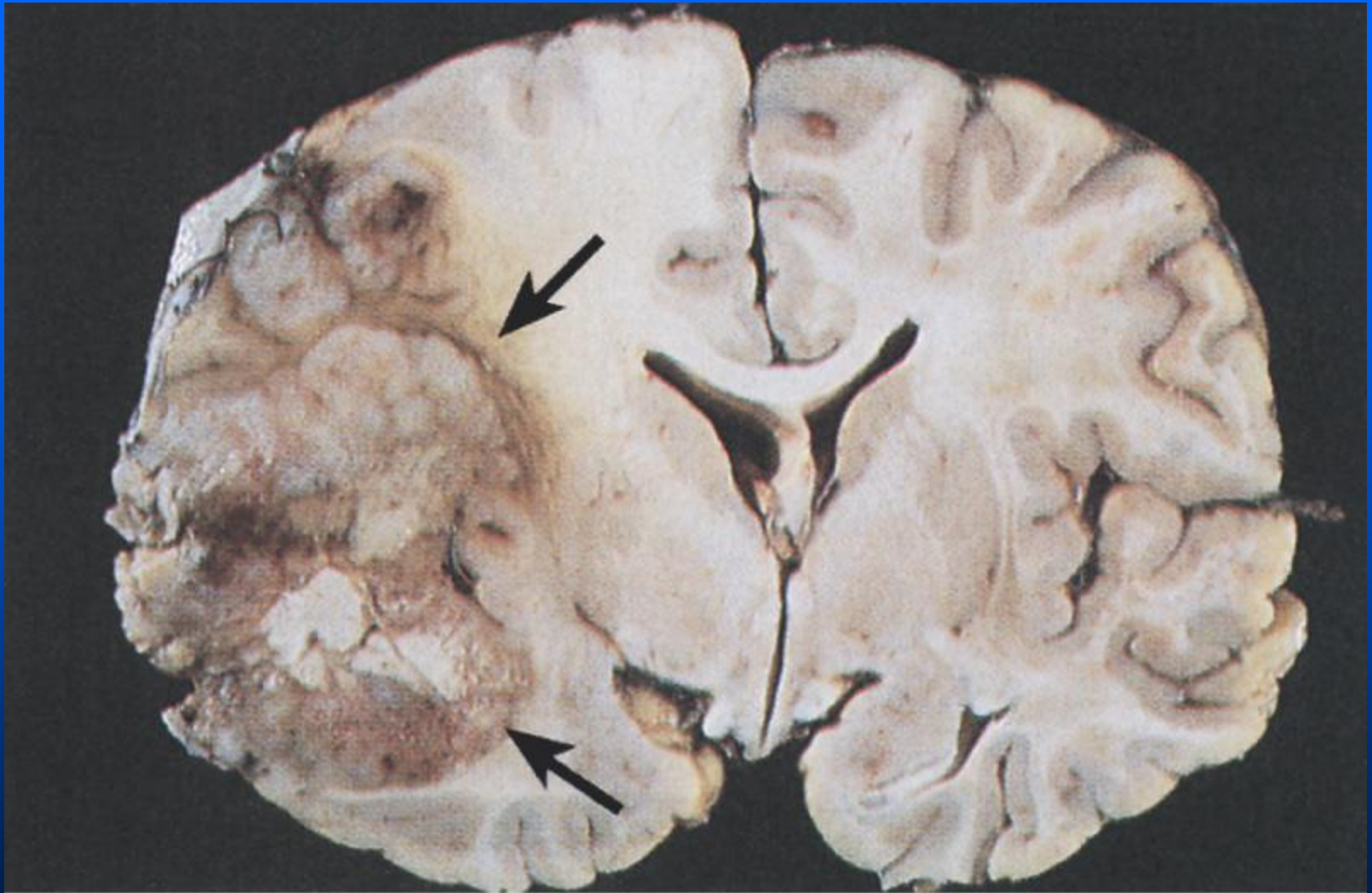


Figure 15-19 From Osborn AG: *Diagnostic neuroradiology*, St Louis, 1994, Mosby. Courtesy E. Tessa Hedley-White.

# Pathologies, (cont.)

- tumors: glioma, meningioma
- intracranial
- hydrocephalus
- neuroma

# Pathologies, (cont.): *Seizures*

- convulsions
- epilepsy
- narcolepsy

# Pathologies, (cont.):

## *Degenerative Disorders*

- Parkinson disease, bradykinesia
- multiple sclerosis (MS)
- amyotrophic lateral sclerosis (ALS)
- myasthenia gravis
- dementia, Alzheimer disease

# Pathologies, (cont.): *Eye Disorders*

- hordeolum, iritis, keratitis
- ophthalmomalacia, ophthalmoplegia
- ophthalmorrhagia, ophthalmalgia
- cataract, glaucoma

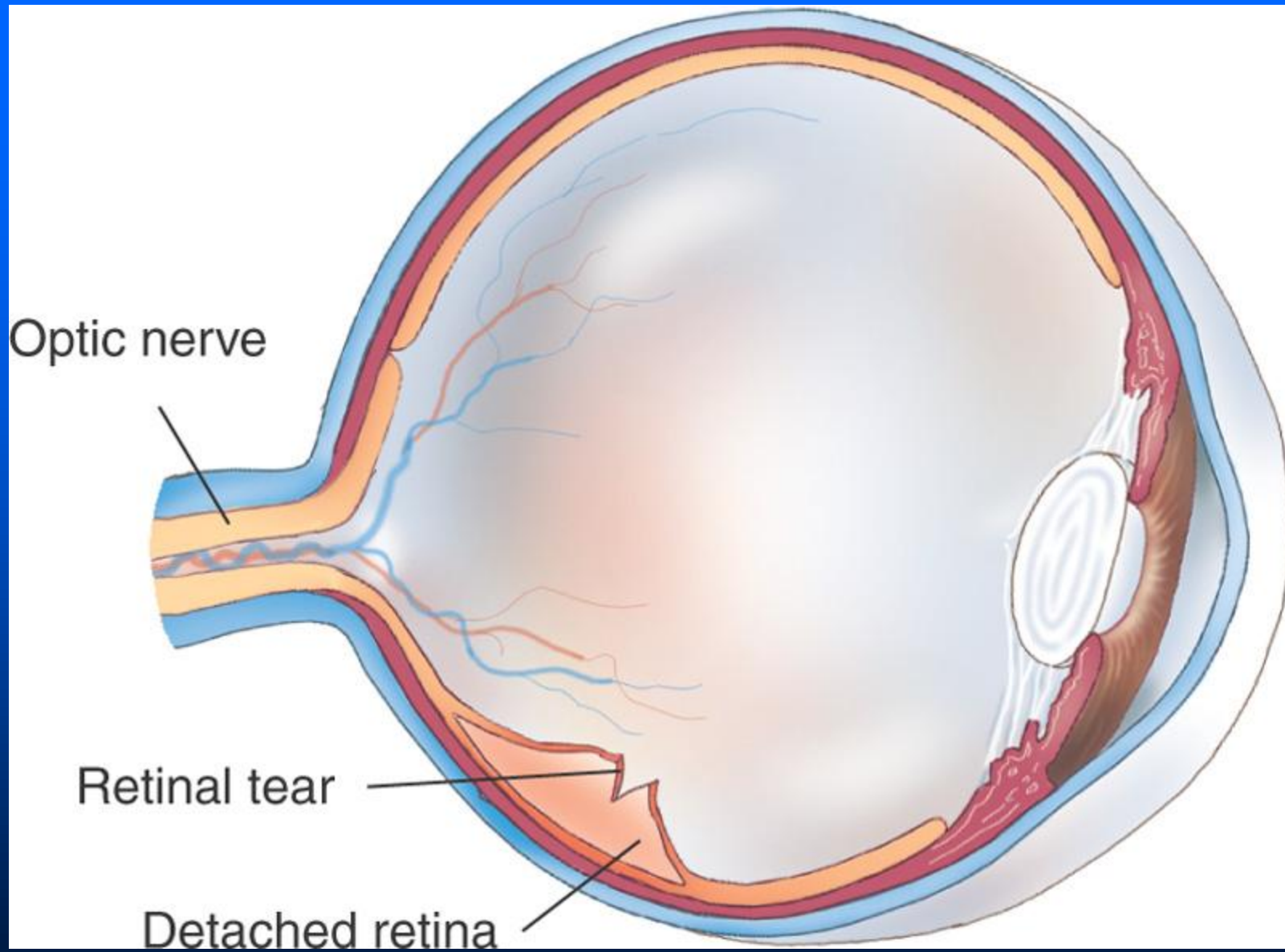


Figure 4-4 From Palay DA, Krachmer JH, eds.: Ophthalmology for the primary care physician, St. Louis, 1998, Mosby.

# Pathologies: *Eye Disorders*, (cont.)

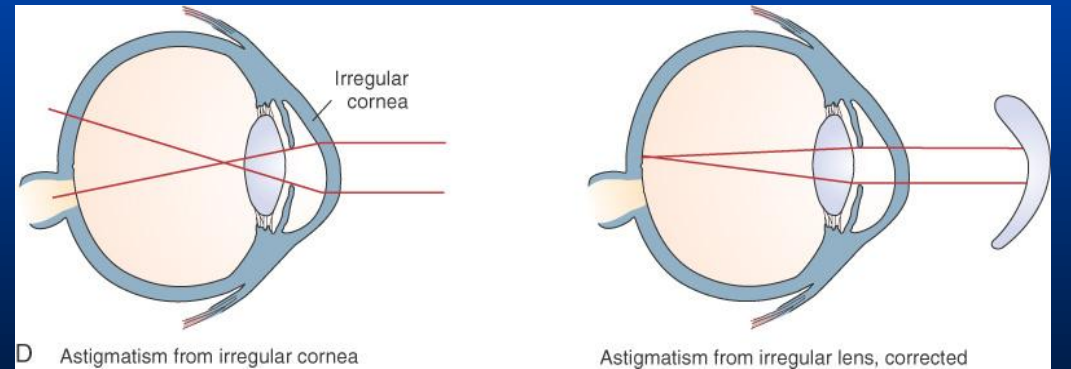
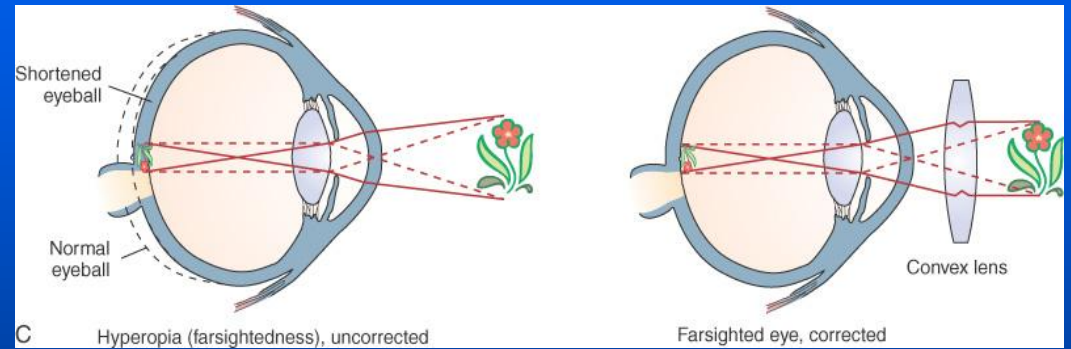
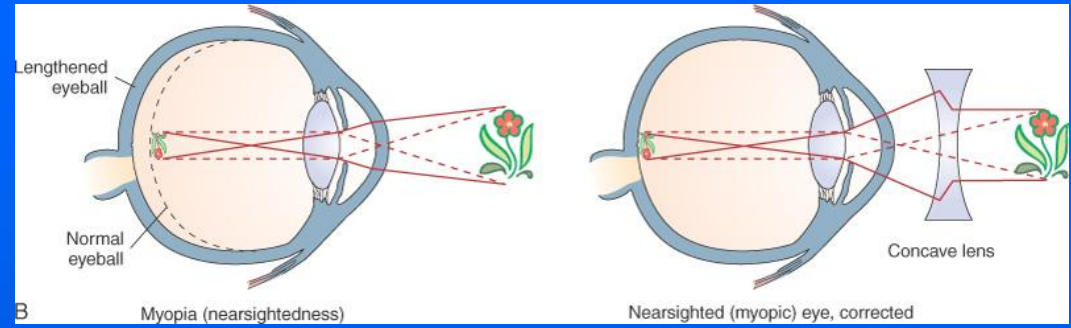
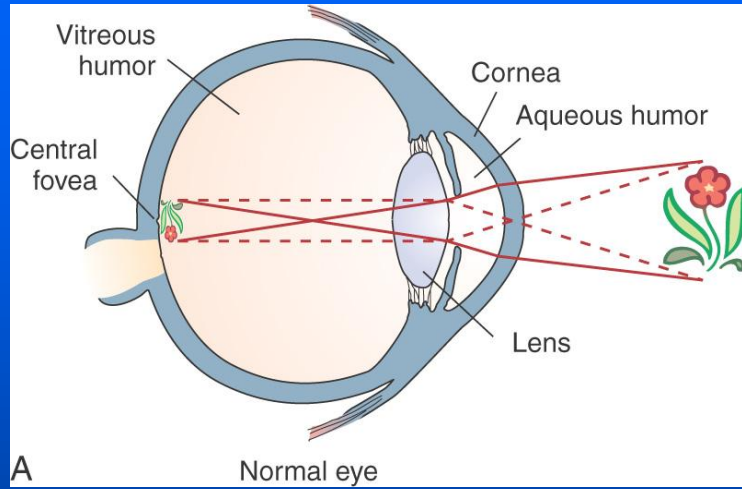
- blepharoptosis
- blepharitis, blepharedema
- conjunctivitis
- retinopathy, detached retina, macular degeneration





# Pathologies: *Eye Disorders*, (cont.)

- dacryolith, dacryolithiasis
- dacryocystitis
- dacryosinusitis



# Pathologies, (cont.):

## *Ear Disorders*

- otalgia, otitis media
- mastoiditis
- otorrhea

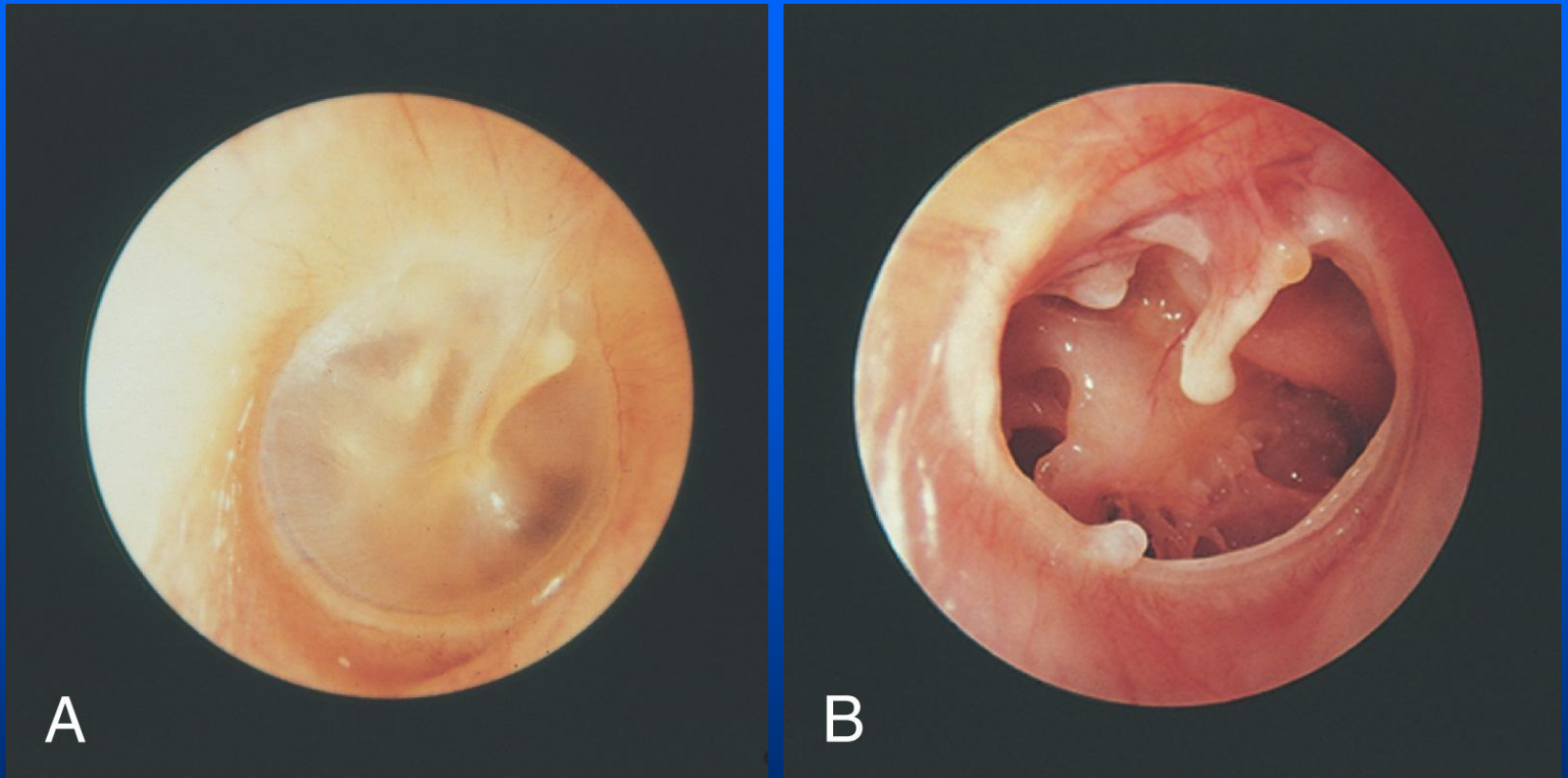


Figure 15-22 From Ignatavicius DD, Workman ML: *Medical-surgical Nursing: Critical thinking for collaborative care*, ed 5, Philadelphia, 2006, Saunders.

# Pathologies: *Ear Disorders*, (cont.)

- otosclerosis
- tinnitus
- Meniere disease
- vertigo

# Quick Quiz!

Which test uses ultrasonic waves to record structural aspects of the brain?

- A. electroencephalography
- B. echoencephalography
- C. cerebral angiography
- D. audiometry



# Word Parts: Psychological Disorders

ment(o), psych(o)

mind

phren(o)

mind or diaphragm

pyr(o)

fire

schist(o), schiz(o)

split

idio-

individual

# Psychological Disorders

- mental retardation
- autism
- hyperkinesia, hyperkinesis
- attention deficit disorder (ADD)
- attention deficit hyperactivity disorder (ADHD)

# Psychological Disorders, (cont.)

- phobias: agoraphobia, zoophobia, phobophobia, acrophobia, claustrophobia, pyrophobia

# Psychological Disorders, (cont.)

- neurosis
- mood disorder
- clinical depression
- anxiety disorders
- panic disorder, panic attack

# Psychological Disorders, (cont.)

- obsession, compulsion
- obsessive-compulsive disorder (OCD)
- somatoform disorders
- hypochondriasis

# Psychological Disorders, (cont.)

- sexual disorders, paraphilia
- posttraumatic stress disorder

# Psychological Disorders, (cont.)

- mania, megalomania
- bipolar disorder
- pyromania, pyromaniac
- kleptomania, pseudomania
- pseudoplegia



# Psychological Disorders, (cont.)

- neurasthenia, psychosomatic
- schizophrenia
- psychosis, psychotic disorder
- personality disorders: antisocial behavior, paranoia
- Diagnostic and Statistical Manual of Mental Disorders (DSM)

# Lesson 15.3

9. Write the terms for surgical and therapeutic interventions for nervous system pathologies and psychological disorders when given descriptions or match the interventions with their descriptions.
10. Use word parts from this chapter to determine the meanings of terms in a health care report.
11. Spell the terms accurately.
12. Pronounce the terms correctly.
13. Write the meanings of the abbreviations.
14. Categorize terms as anatomy, a diagnostic test or procedure, pathology, surgery, or therapy.

# Surgical & Therapeutic Interventions

- analgesic, opioid analgesics
- epidural anesthesia
- nerve block anesthesia
- sympathectomy, vagotomy

# Surgical & Therapeutic Interventions, (cont.)

- TENS
- neurotomy, neurolysis, neurectomy
- neuroplasty, neurorrhaphy
- cerebrotomy, craniotomy, craniectomy

# Surgical & Therapeutic Interventions, (cont.)

- aneurysmectomy, cerebrotomy
- cranioplasty, burr hole
- stereotaxis, stereotactic surgery
- stereotactic radiosurgery, gamma knife procedure
- shunt, ventriculoperitoneal shunt

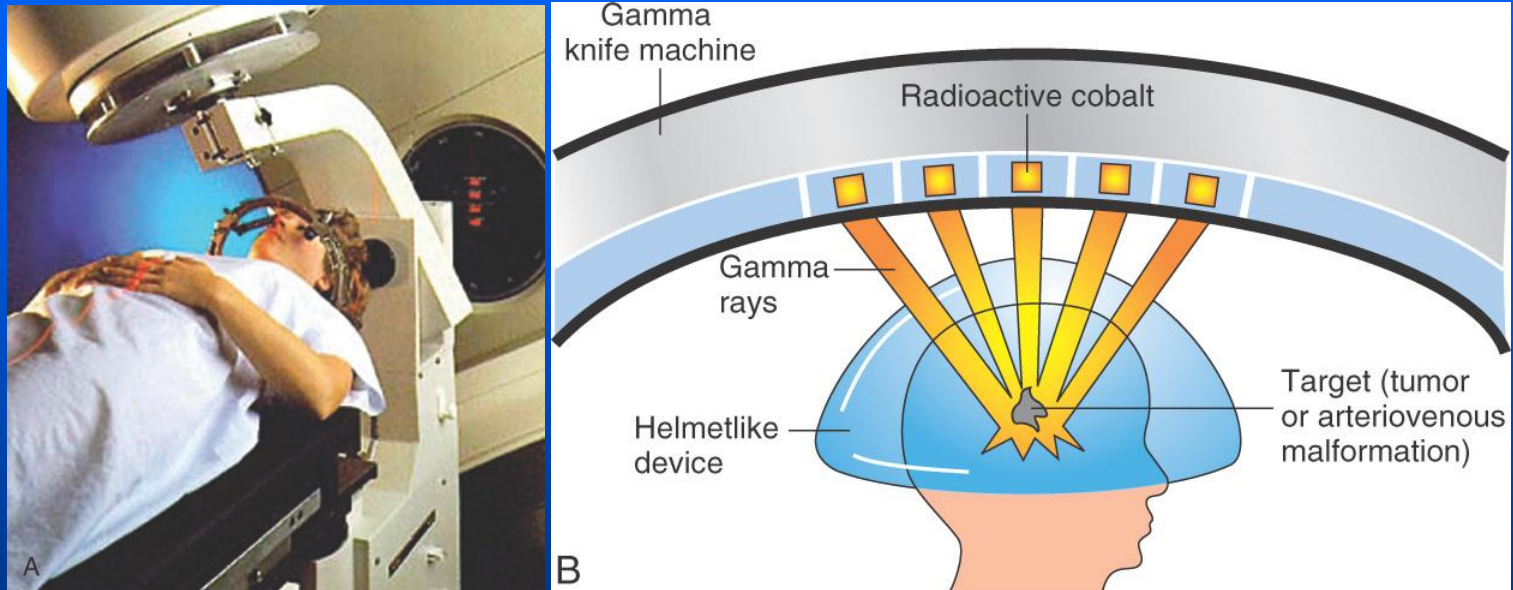


Figure 15-24A Courtesy Department of Neurological Surgery, Vanderbilt University medical Center, Nashville, Tenn.

Figure 15-24B From Ignatavicius DD, Workman ML: Medical-surgical Nursing: Critical thinking for collaborative care, ed 5, Philadelphia, 2006, Saunders

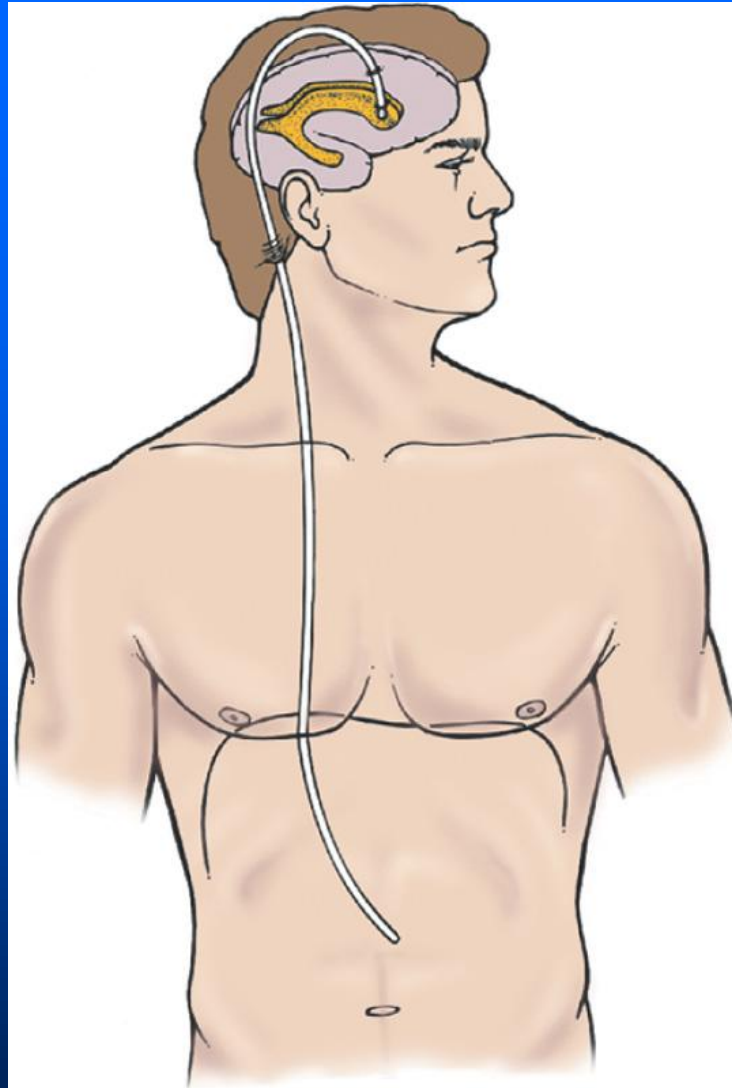


Figure 15-23 From Monahan FD, Sands JK, Neighbors, M, Marek JF and Green CH: Phipps' Medical-Surgical Nursing: Health and illness perspectives, ed. 8, St. Louis, 2007, Mosby



# Surgical & Therapeutic Interventions, (cont.)

- hypnotics
- anticonvulsants
- antiparkinsonian drugs
- contraindication
- thrombolytics

# Surgical & Therapeutic Interventions, (cont.)

- blepharoplasty
- intraocular lens
- corneal grafting

# Surgical & Therapeutic Interventions, (cont.)

- corrective glasses, corrective lenses
- radial keratotomy, excimer laser
- dacryocystorhinostomy, dacryocystostomy



Figure 15-26 From Phipps WJ, Monahan FD, Sands JK, Marek JF, Neighbors M: Medical-Surgical Nursing, ed 6, St. Louis, 2003, Mosby.

# Therapeutic Interventions, (cont.)

- psychoanalysis, psychotherapy
- psychopharmacology
- antidepressants, antianxiety drugs
- antipsychotics, tranquilizers
- narcotic drugs

# Quick Quiz!

Which of the following means surgical excision of a dilation of an artery?

- A. aneurysmectomy
- B. cerebrotomy
- C. pseudoplegia
- D. stereotactic radiosurgery

# Abbreviations

- ACh
- CNS
- CSF
- DTR
- PNS



# Abbreviations, (cont.)

- **DSM**
- **EEG**
- **dB**
- **TENS**
- **LBP**

# Abbreviations, (cont.)

- CVA
- ICP
- SCI
- TIA
- IOL

# Abbreviations, (cont.)

- ADD
- ADHD
- ALS
- MS
- OCD