

Super Notes for Comprehensive Final Biological Psych

Psychobiologists

behavior people of neuroscience
brain people of psychology

Transduction

converting from one thing to another
vibrations to sound
light to vision
pressure to touch

Genetics

passed on intact
impacts structures not behaviors
recessive or dominant
survival of fittest

Brain development

founder cells
symmetrical division
asymmetrical division
primitive streak
neural tube
glial cells
 astrocytes
 oligodendrocytes
 myelinating Schwann cells
 radiating glial
 microglial

Axons vs Dendrites

long	short
thin	fat
smooth	rough

Summation (integration)

spatial
temporal

Effects

- ionotropic
- metabotropic (g protein)

Synapses

- Electrical (gap junctions)
- Chemical

Neurotransmitters

- Catecholamine
 - Dopamine
 - Norepinephrine
 - Epinephrine
- Indolamine
 - Serotonin
 - Melatonin
- Acetylcholine
- Glutamate
- GABA

Drugs

- Cocaine
- Amphetamines
- Opioids
 - reduce pain
 - increase itch
- affinity
- lipid solubility
- withdrawal
- tolerance

Hormones

- anabolic steroids (synthetic)
- estrogen
- GnRH
- progesterone
- testosterone
- in development
 - Müllerian ducts (female)
 - Wolffian ducts (male)

Disorders

Alzheimer's	loss of hippocampus, etc.
Amnesia	damage to hippocampus
retrograde	
anterograde	
source	
Aphasia	
Wernicke's	fluent aphasia
Broca's	production aphasia
Apraxia	motor planning problems
Depression	
Eating disorders	
rats at buffet eat like us	
anorexia	
bulimia	
Glaucoma	blockage of aqueous humor
Macular degeneration	retina damage
dry (drusen)	
wet (choroid)	
Myasthenia gravis	demyelination
Panic disorder	
Parkinson's	loss in substantial nigra
Stroke	
hemorrhagic	
aneurism	
structural problems	
ischemic	
narrowing	
clot	
transient ischemic event	
Schizophrenia	
Positive symptoms	
delusions	
paranoid	
hallucinations	
disturbed thoughts	
Negative symptoms	
similar to drug addiction	
Causes	
infection (flu season)	
genetics	
born near poles	

born in city
low birth weight

Learning

near transfer
far transfer

ANATOMY

Frontal Lobe

Primary motor cortex (homunculus)
Premotor cortex
Supplemental motor cortex
Prefrontal cortex
 Dorsolateral
 Orbitofrontal
 Ventromedial

Vision

aqueous humor
choroid
cornea
lens
LGN
vitreous humor
rhodopsin: stable, black and white only
color opsins: 3 types
Streams
 dorsal: to parietal lobe, where pathway
 ventral: to temporal lobe, what pathway

Hearing

pinna
ossicular chain
Eustachian tube
oval window
round window
auditory cortex
 concentric circles
 primary
 secondary
 tertiary

Otolith organ
utricle

Spine

sensory (affective); back of spine
motor (efferent); sides of spine
injuries from twisting

Hypothalamus

triggers release of cortisol (from adrenals) and epinephrine when stressed
lateral hypothalamus: hunger and thirst

Other

anterior cingulate cortex (poor inter-hemisphere communication)
reticular formation (irreversible coma)
hippocampus (amnesia)
pineal gland (sleep disturbances)
pons (loss of coordination)
right fusiform gyrus (face recognition)
left fusiform gyrus (face-like)
corpus callosum (inter-hemisphere connection)

FUNCTION

Brain waves

beta	awake
alpha	calm
theta	creative
delta	deep sleep
REM	dreaming

Sleep

k complexes
sleep spindles
N1
N2
N3
REM
sleepiness: adenosine
cycle: melatonin

Emotion

- PERMA (Seligman)
- surprise
- fear
- disgust
- James-Lange
- common sense
- two-factor
- cognitive mediation

Memory

- Declarative
 - Episodic
 - Semantic
- Implicit (procedural)
- Prospective
- Sensory
 - Echoic
 - Iconic
- Working