

exam-3-study-guide

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Action

- Monosynaptic stretch reflex
 - Also called “myotatic”
 - Polysynaptic component
- Intrafusal/extrafusal muscle fibers
 - Extrafusal == produce force
 - Intrafusal == take up slack in muscle spindles
- Parkinson’s, Huntington’s
- Wolpert’s ideas about role of brains in movement planning

Somatosensation

- Functional segregation
 - Different receptors detect different qualities/dimensions
- What information projects to brain fastest & why?
 - Thick axons & thick myelin -> proprioception from muscle spindles
- Similarities to, differences from vision, audition
- Relation between sensitivity, receptor density, receptive field size, and corresponding cortical area.
 - Higher sensitivity == > density, < receptive field size, > cortical area size

Disorders

- Serotonin/monoamine hypothesis of depression, treatments
- Treatments for bipolar disorder
- Dopamine hypothesis of schizophrenia & alternative

Emotion

- Plutchik
- Fear, stress circuits
- Reward/happiness circuits
 - Milner & Olds stimulation experiment

Sleep

- Suprachiasmatic nucleus, melatonin

Hormones

- Oxytocin
- Cortisol

Evolution

- Relative brain sizes among mammals

Neuroanatomy

- Ventricles
- Lobes of the cerebral cortex
- Parts of the brain

Neurophysiology

- Resting, action potentials
- Postsynaptic potentials, end plate potential (muscle fiber)
- Role of Ca^{++} in
 - Synaptic communication
 - Muscular contraction

Next time

- Exam 3

References