

Key

Nervous System

What are the three types of neurons and what are their functions?

Motor Neuron: Nerve cell that transmits impulses from the CNS to the effector cell.

Sensory Neuron: Nerve cell that carries impulses from sense receptors to the CNS

Relay Neuron: Connects Sensory & Motor Neurons

What are the types of effector cells?

- Glands
- Muscle Tissue (Cardiac, Smooth, & Skeletal)

What are the differences between graded potentials and action potentials?

Graded Potentials

- depolarizing OR hyperpolarizing
- No threshold value
- Amount of de/hyper-polarization determined by strength of stimulation
- Passive spread from site of stimulation
- Effect on membrane potential ↓ with distance from stimulation site
- No refractory period
- Occurs in plasma membranes

Action Potentials

- ALWAYS depolarizing
- Must depolarize to threshold value to begin
- All-or-None (stimuli must exceed threshold value)
- Action potential at one site depolarizes adjacent sites to threshold
- Propagated along entire membrane surface without decrease in strength
- Has a refractory period
- Occurs only in excitable membranes of neurons & muscle cells

As the axon diameter (increases/decreases) and the degree of myelination (increases/decreases) the speed that a neuron can transfer an impulse will (increase/decrease).

Explain the differences between electrical synapses and chemical synapses.

Electrical

- ★ Gap Junctions
 - ↳ Channels directly connect neurons
- Smooth & Cardiac Muscle
- Immediate & large reactions
 - ↳ Faster than chemical synapses
 - ↳ Whole organ contractions

Chemical

- ★ Neurotransmitters
 - ↳ Hormones float to the next neuron
- Skeletal Muscle
- Controlled, Slower Movements
 - ↳ Voluntary Movements
 - ↳ Slower reaction times than electrical synapses
- Ca^{2+} & Acetyl CoA + choline

What muscles do electrical synapses go with? Chemical synapses?

↓
Cardiac & Smooth Muscle

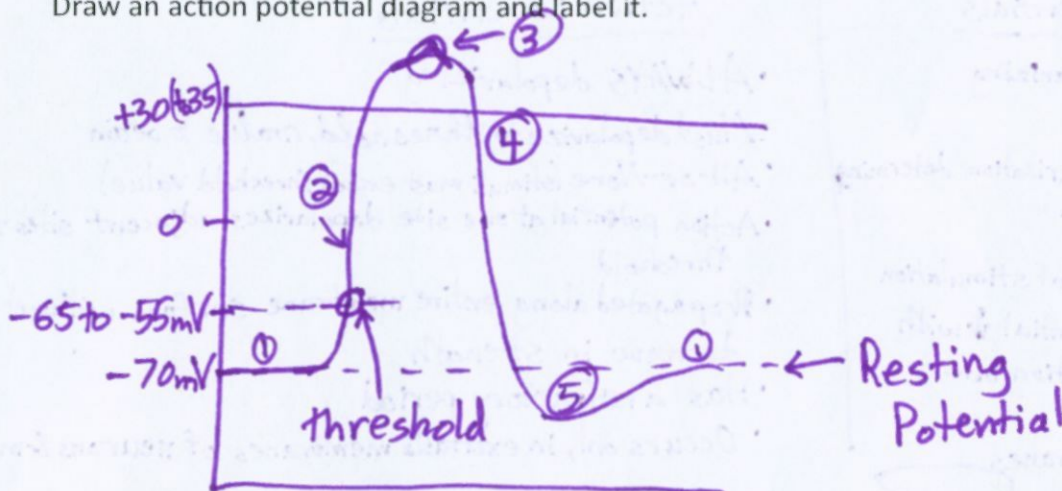
↓
Skeletal Muscle

What hormones were discussed in relation to the sympathetic nervous system and the parasympathetic nervous system?

↓
Acetylcholine
* Muscles & Glands

↓
Acetylcholine & NE
* Connects to vital organs

Draw an action potential diagram and label it.



- ① Resting State (Resting Membrane Potential)
- ② Depolarization
- ③ Highest it goes = 30 to 35 mV
- ④ Repolarization
- ⑤ Hyperpolarization (AKA: Undershoot)