



Neuronal Structures The Synapse

Psychology 372

Physiological Psychology

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Contains Three Sets of Structures

- Presynaptic Element and its structures
- Synaptic Cleft
- Postsynaptic Element and its structures.
- Also contains other structures
 - Neurofilaments
 - Glial is nearby
 - Other enzymes

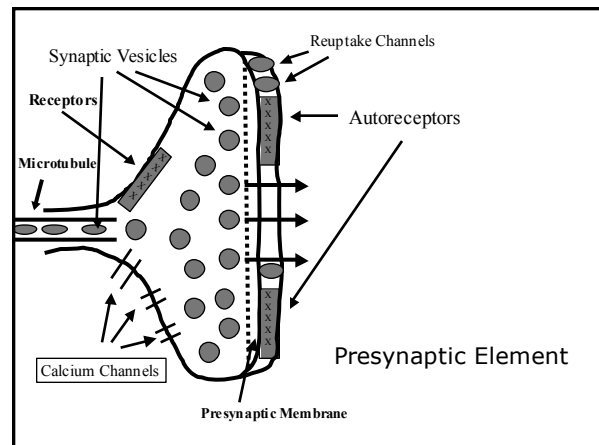
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Presynaptic Element

- Contains the structures in the lipid bilayer
- Contains other structures
 - Synaptic Vesicles
 - Channels
 - Na, K, Ca
 - Receptor sites from other axons
 - Presynaptic Membrane
 - Autoreceptors
 - Reuptake channels
 - Others

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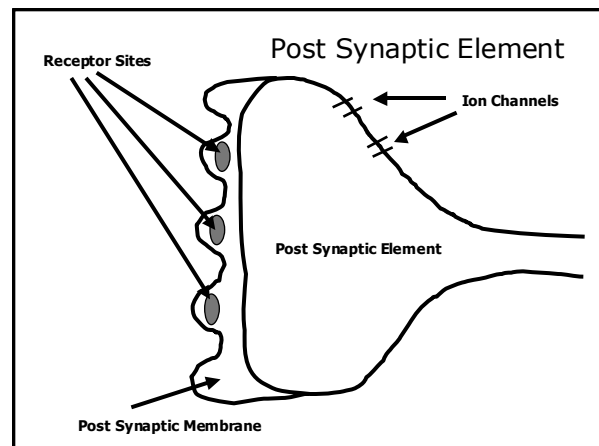


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Post Synaptic Element

- Has a post synaptic membrane
 - Contains receptor sites to receive neurotransmitters
 - Contains channels for ion influx
 - Usually Na
 - Contains other structures
 - Protein Kinases
 - Adenyl Cyclase

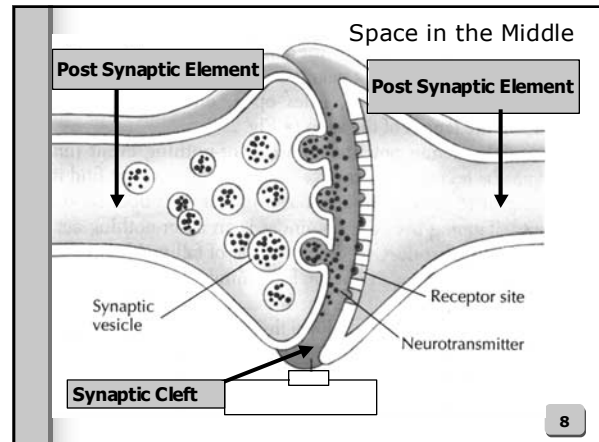
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Space in the Middle

- Pre and Post Synaptic elements do not touch each other
- Space in the middle is called the Synaptic Cleft.
- Contains neurofilaments
 - Are bands of fibers that keep both structures close to each other.

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Synapse Types

- Three types
 - Axosomatic Synapse
 - Axodendritic Synapse
 - Axoaxonic Synapse

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Axosomatic Synapse

- Makes a connection with a soma
 - Tend to be more regulatory

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Axodendritic Synapse

- Makes a connection with a dendrite
 - Tend to be excitatory

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Axoaxonic Synapse

- Makes a connection with an axon or related structure.
 - Tend to be inhibitory

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Electrical Synapses

- Gap Junction
- Does not use a chemical-electrical working mechanism
- Uses an electrical charge to create depolarization
 - Much rarer than chemical-electrical synapses.