



SMART PHARMACOLOGY

LESSON 6

Task 1

Synapse is the place of action for the drugs primary influencing on the peripheral processes of neurotransmission (the efferent section of the nervous system).

Fill in the labels on the figure to identify the main elements of the synapse structure.

- Neurotransmitter
- Synaptic terminal
- Synaptic cleft
- Vesicle
- Receptor for neurotransmitter
- Calcium channel

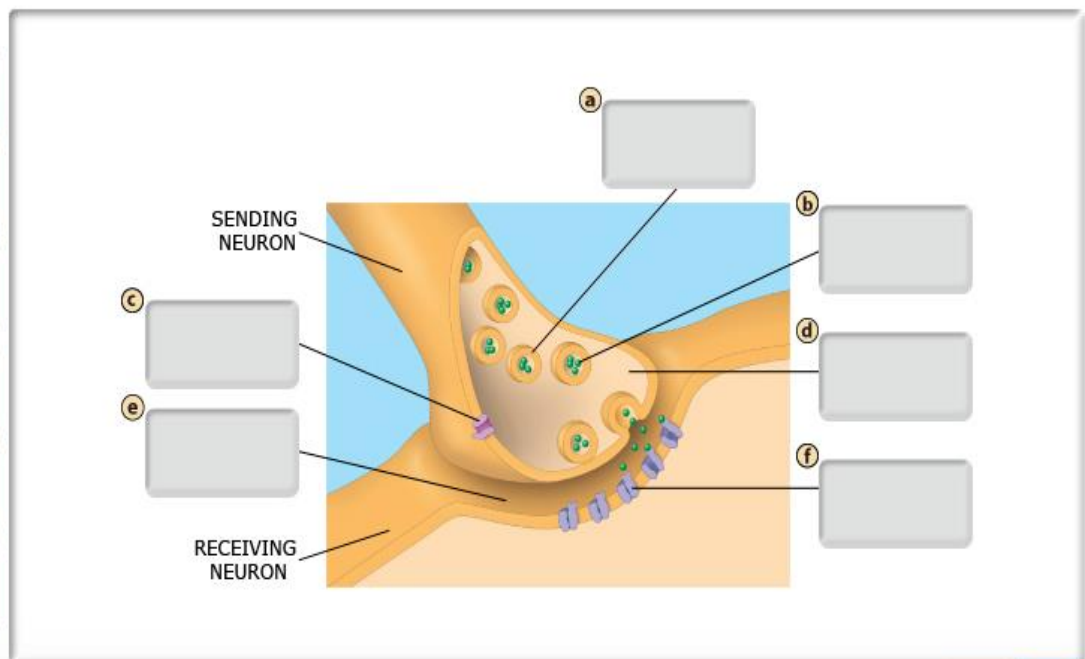


Fig. Synapse structure

Describe the main structural elements of synapse:

1.	Presynaptic membrane	
2.	Postsynaptic membrane	
3.	Synaptic cleft	

To transmit the nervous impulse from one neuron to another (or on the working organ), synapse must pass through three states: *polarization* → *depolarization* → *repolarization*.

Please describe this states and fill in the table:

1.	Polarization (the state of rest)	
2.	Depolarization	
3.	Repolarization	

Task 2

Please identify the drugs affecting efferent innervation. Describe the mechanism of their action.

Classification of drugs affecting efferent innervation

1.	Cholinergic	
2.	Anticholinergic	
3.	Adrenergic	
4.	Antiadrenergic	

Task 3

Please describe the influence of the parasympathetic and sympathetic nervous system on the organs' functions.

The influence of the parasympathetic and sympathetic nervous system on the organs' functions

Organ	Effects under the nerves stimulation	
	Parasympathetic	Sympathetic
Eye		
Exocrine glands (salivary, lacrimal, etc.)		
Bronchi		
Heart		
GIT		
Sphincters		
Rectum		
Uterus		
Vessels		
Urinary bladder		

Task 4

Please identify the drugs affecting efferent innervation (cholinergic and anticholinergic drugs). Describe the mechanism of their action.

Classification of direct-acting cholinomimetics

M-, N-cholinomimetics	M-cholinomimetics	N-cholinomimetics

Classification of indirect-acting cholinomimetics

Reversible- acting anticholinesterase drugs	Irreversible-acting anticholinesterase drug

Task 5

Please compare the pharmacological profile of cholinomimetics.

The pharmacological profile of direct-acting cholinomimetics

Drugs	Action			
	Strength	Duration	Resorptive	Local
Acetylcholine				
Carbacholine				
Pilocarpine				
Aceclidine				
Cytisine				
Lobeline				

The pharmacological profile of indirect-acting cholinomimetics

Drugs	Action				Side effects
	Strength	Duration	Resorptive	Local	
Galanthamine					
Physostigmine					
Neostigmine					
Armine					

Task 6

Organic phosphorus poisoning and its therapy. Discuss the mechanism of cholinesterase inhibition and possible antidotes.

Choose the drug of choice for the treatment of organophosphorus poisoning:

- A. Acetaminophen.
- B. Atropine.
- C. Morphine.
- D. Deferoxamine.
- E. Acetylcysteine.