

Synapse and neuromuscular junction



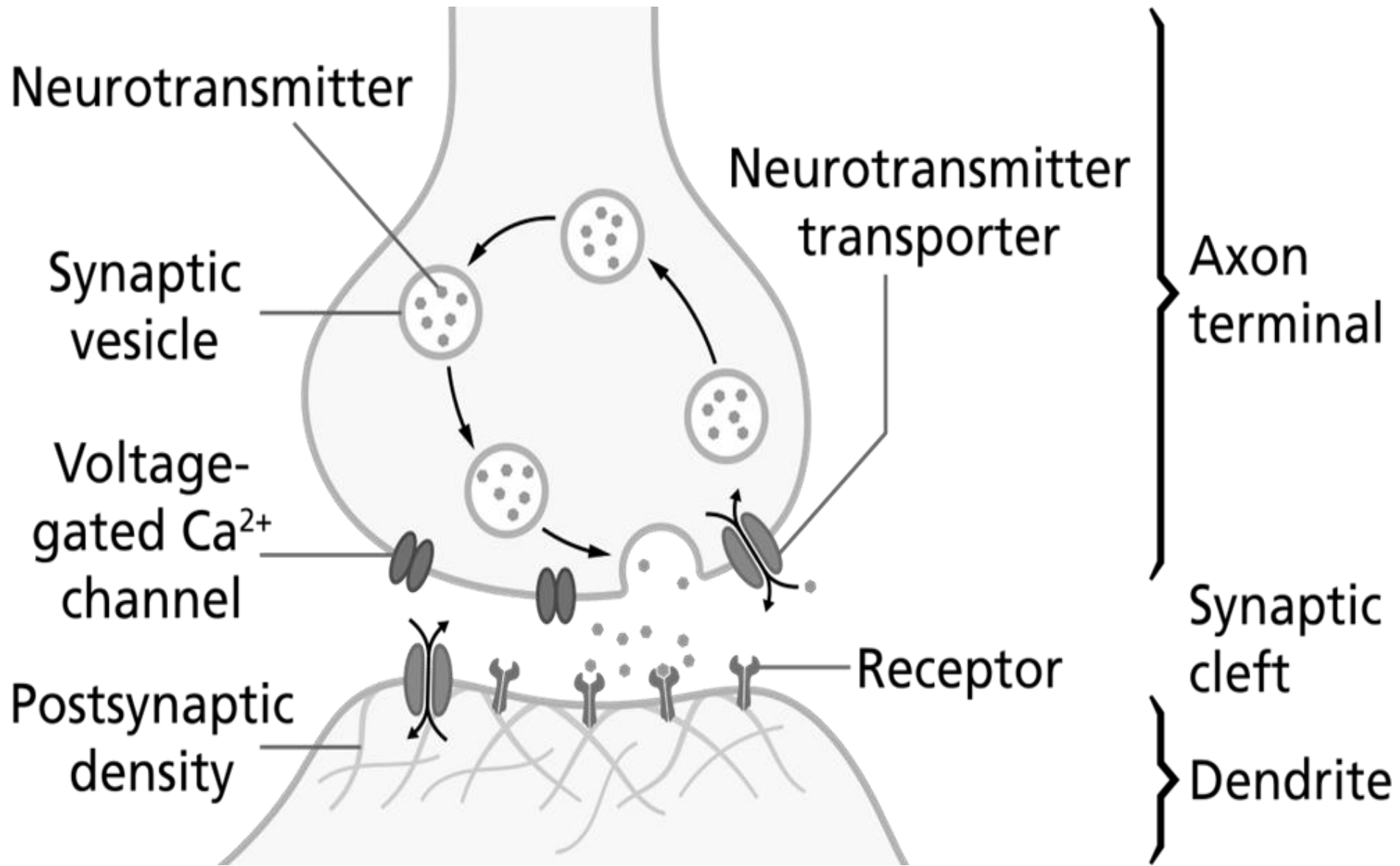
Dr Jayanti Pant

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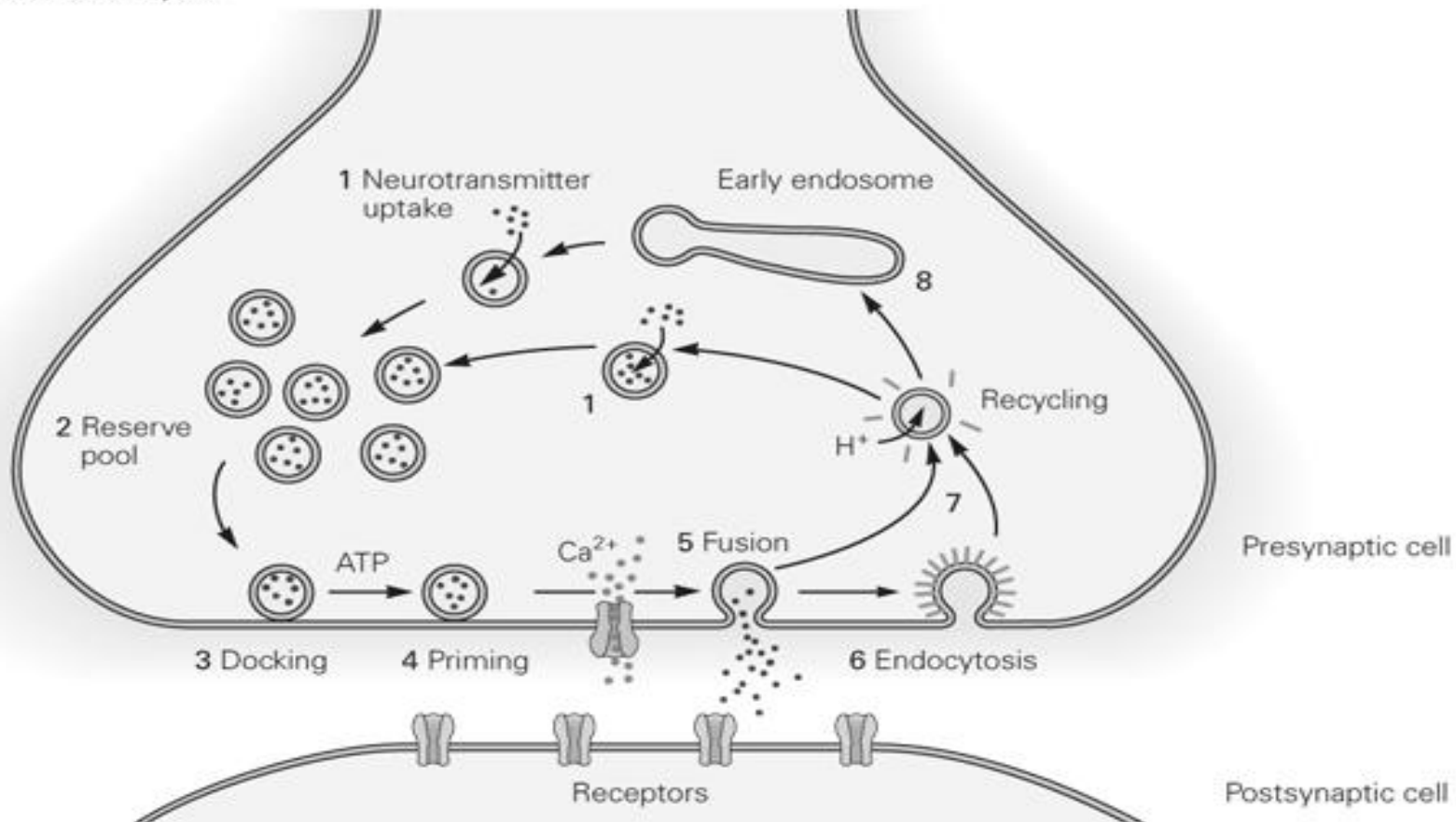
- Types of synapse
- Events during synaptic transmission
- Properties of synapse
- Neuromuscular junction

Synapse types

- Chemical synapse
- Electrical synapse
- Conjoint synapse

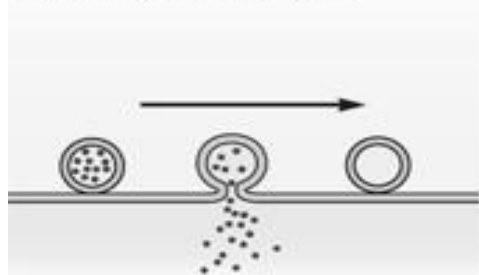


A Synaptic vesicle cycle

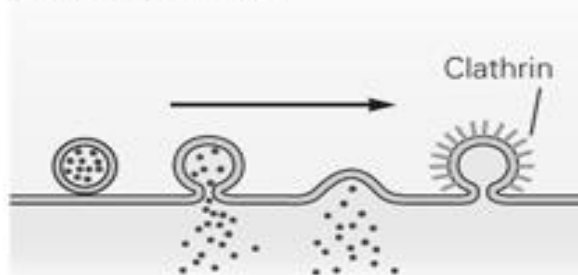


B Mechanisms for recycling synaptic vesicles

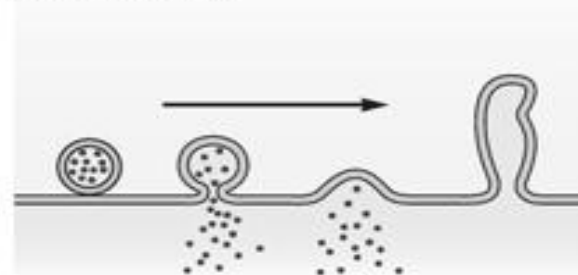
1 Reversible fusion pore



2 Clathrin mediated



3 Bulk retrieval

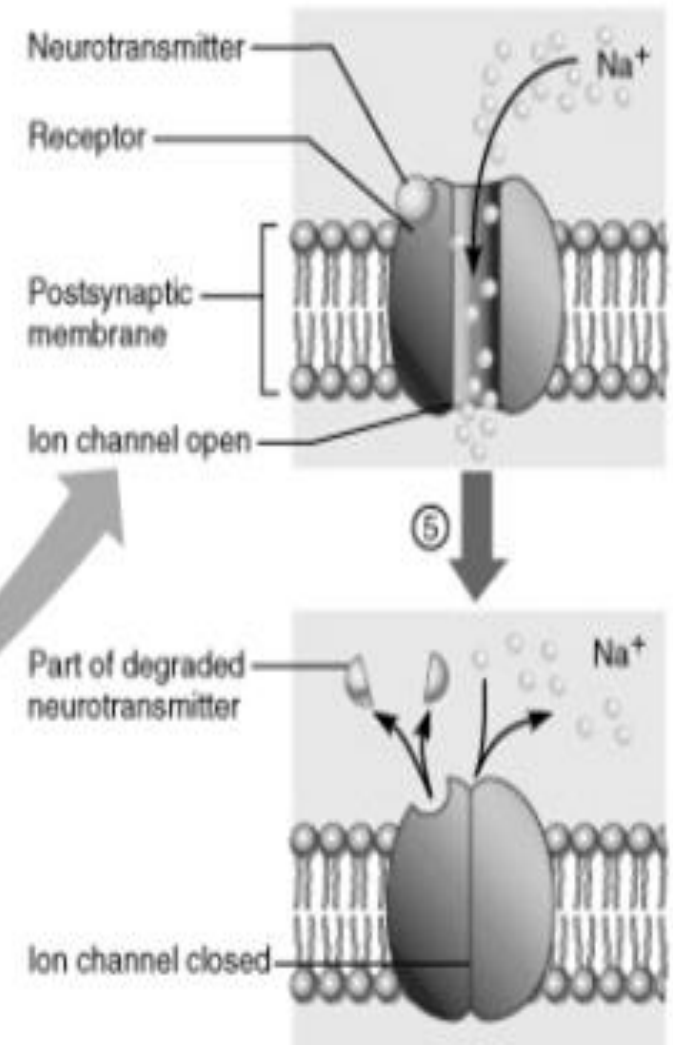
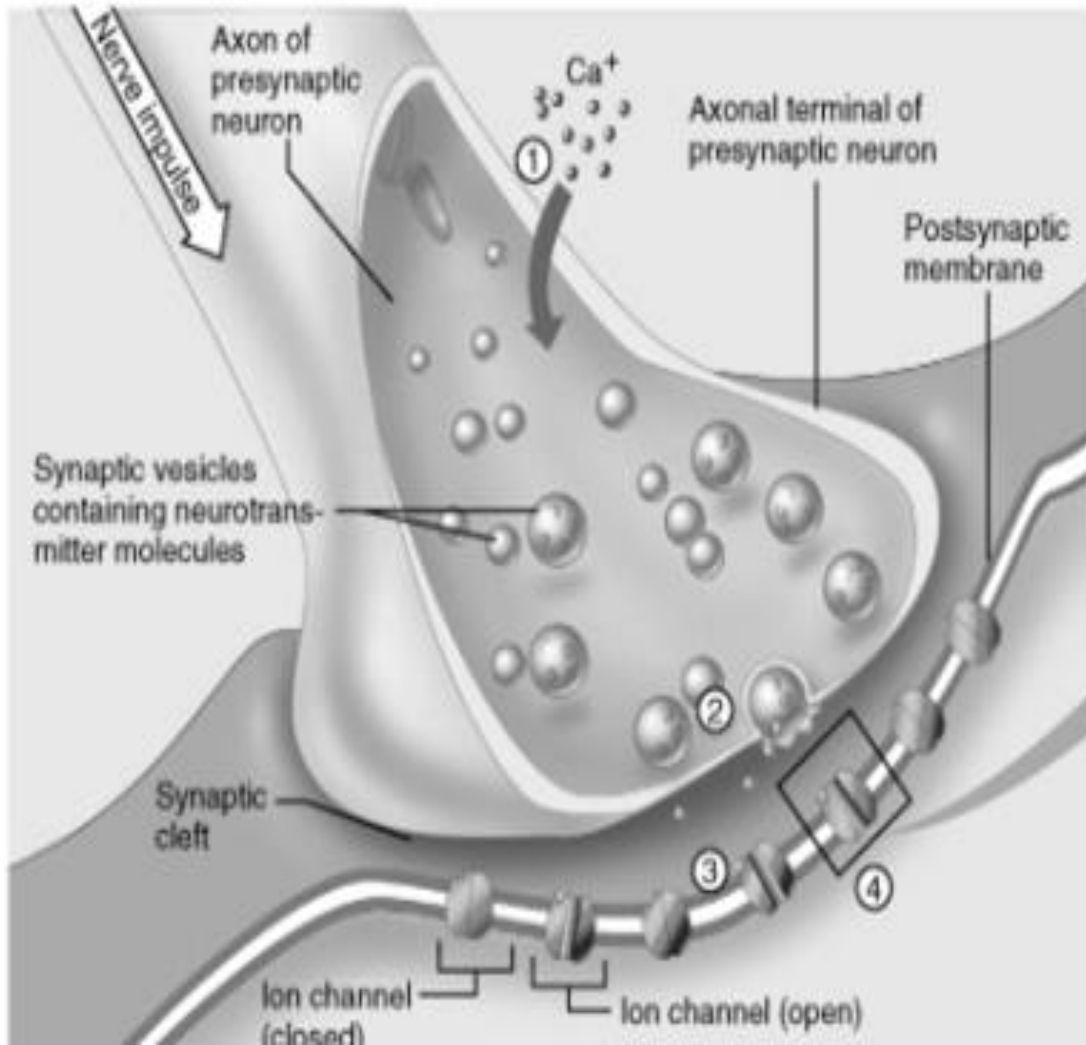


Tetanus

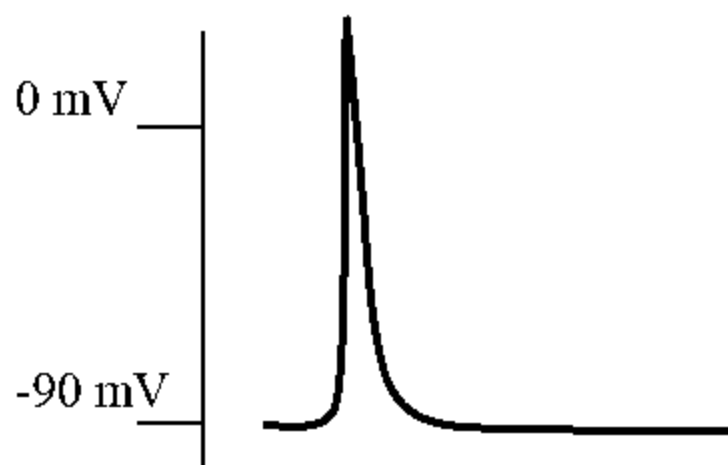
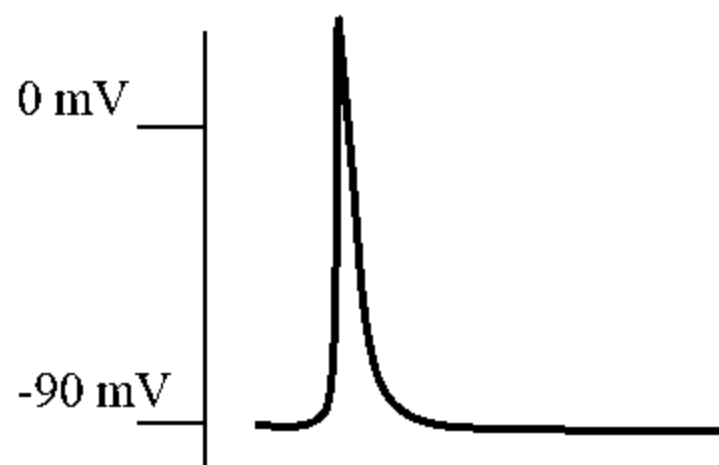


Botulinum toxicity

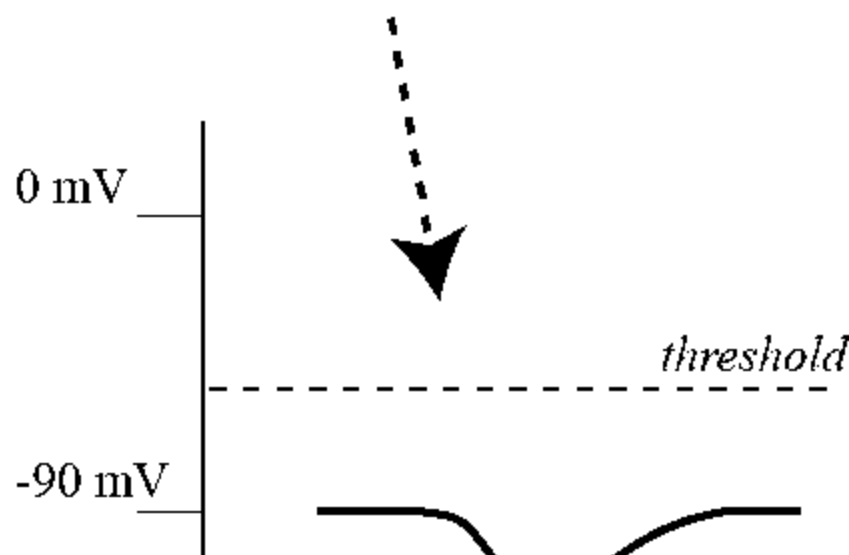
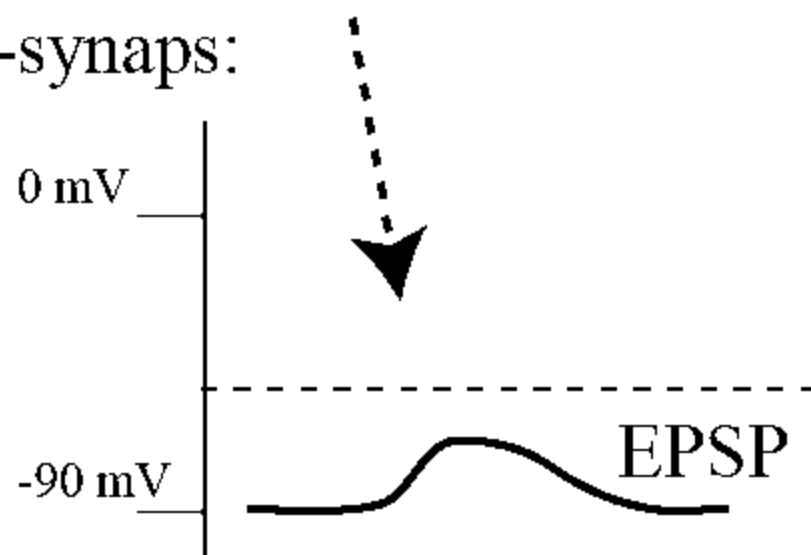




pre-synaps:



post-synaps:

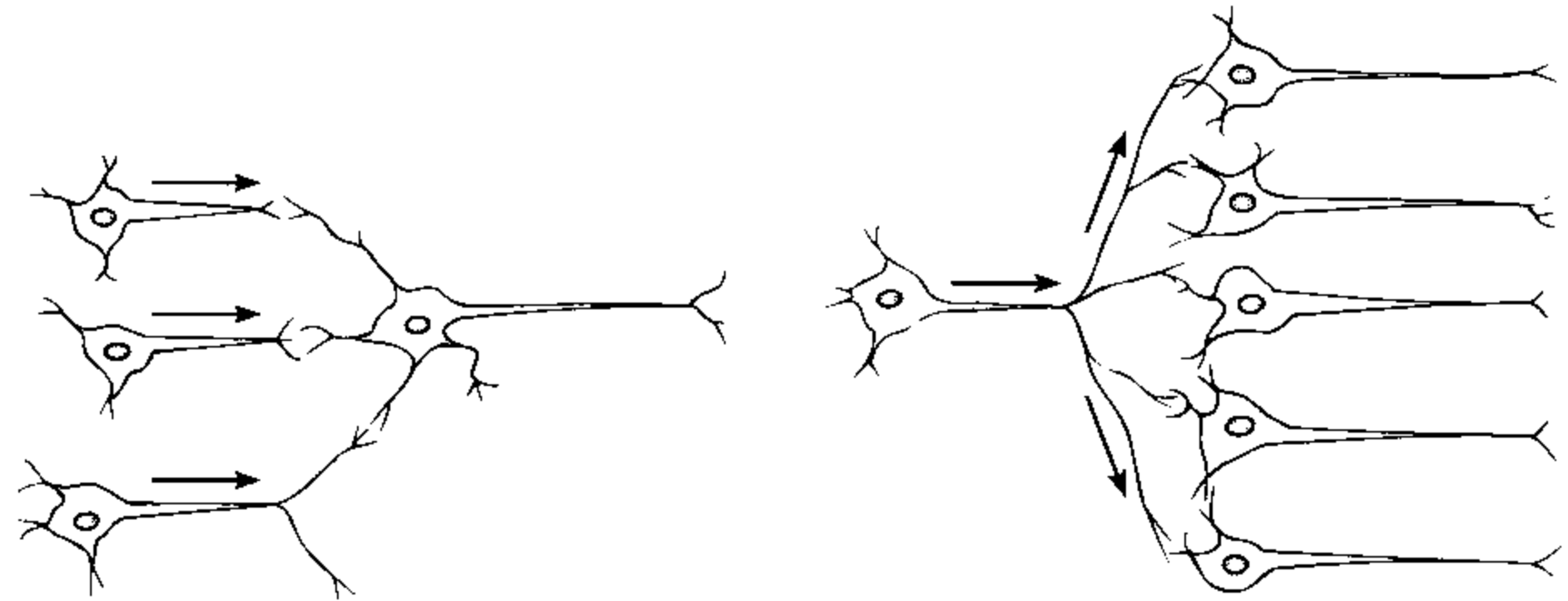


IPSP

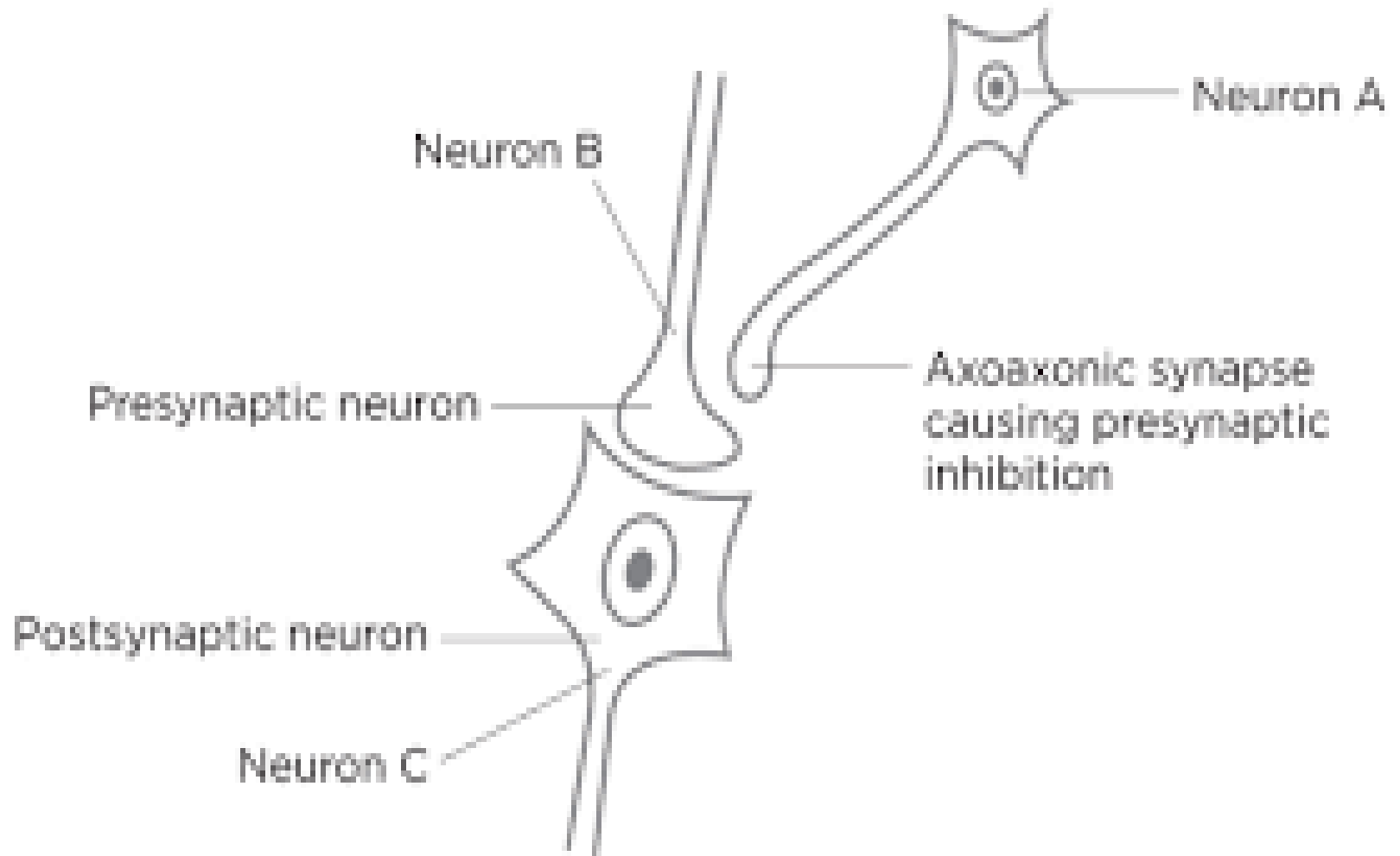
Properties of synapses

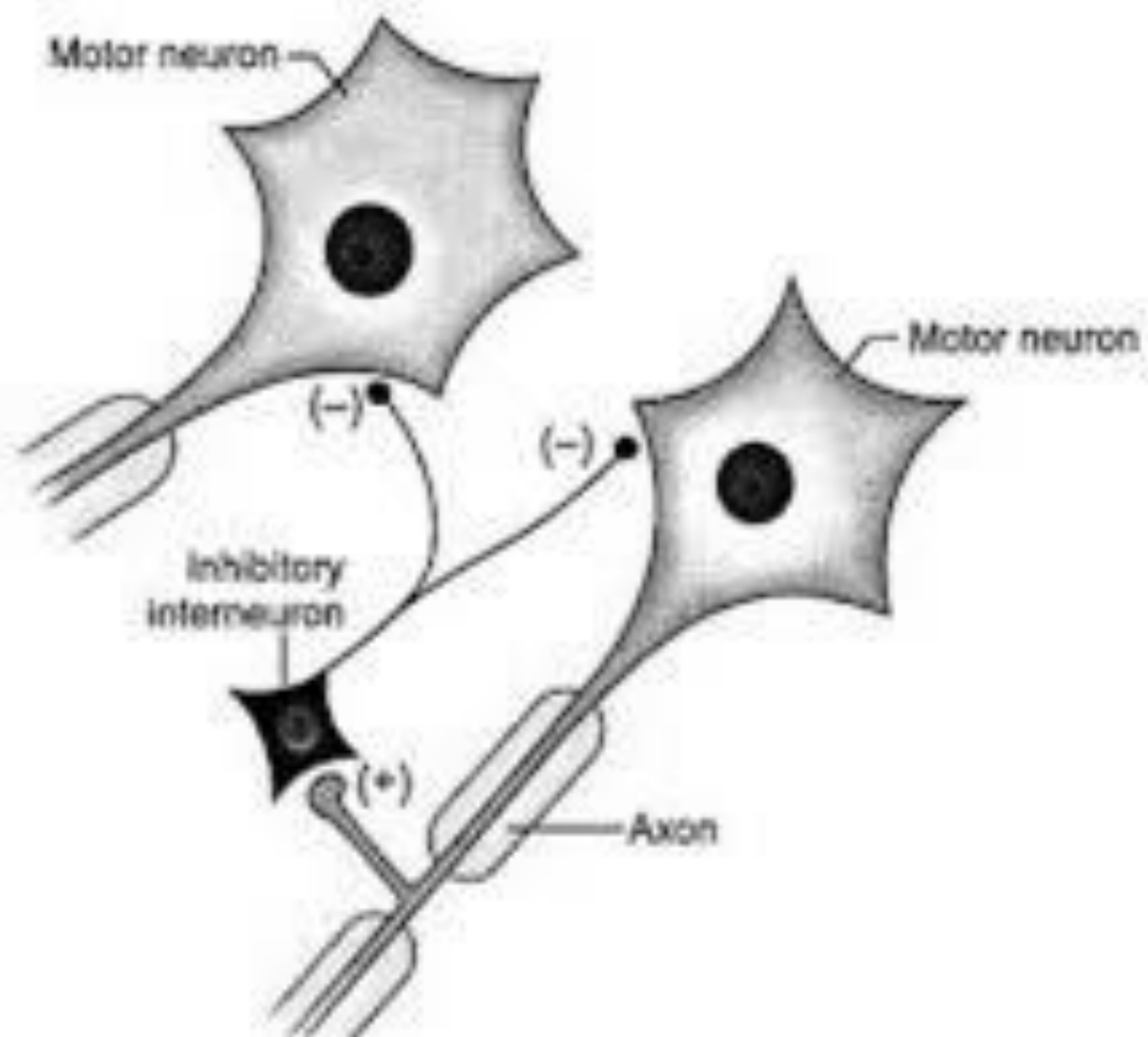
- Law of forward conduction
- Synaptic delay
- Law of divergence and convergence
- Synaptic inhibitions
- Synaptic facilitation
- Summation
- Occlusion
- Habituation, sensitization and Potentiation
- Plasticity

Convergence and Divergence



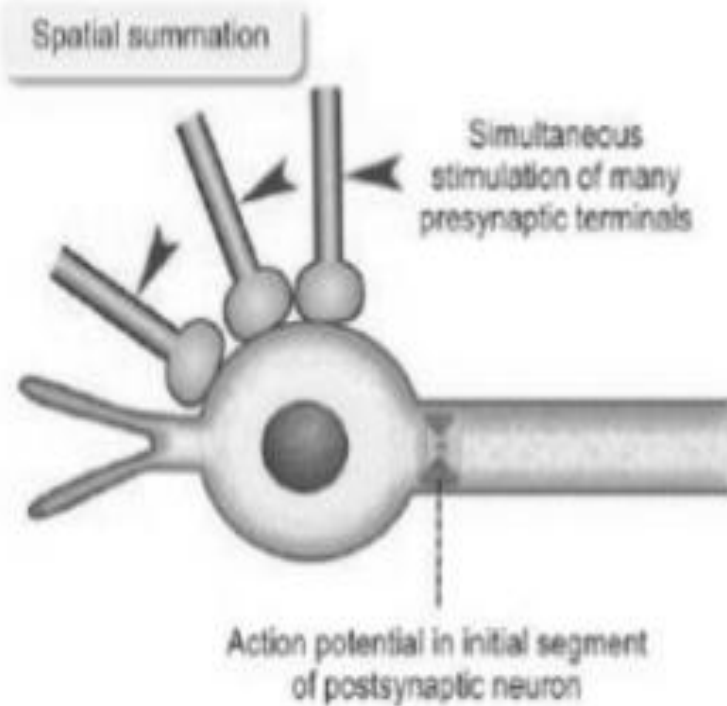
Presynaptic inhibition



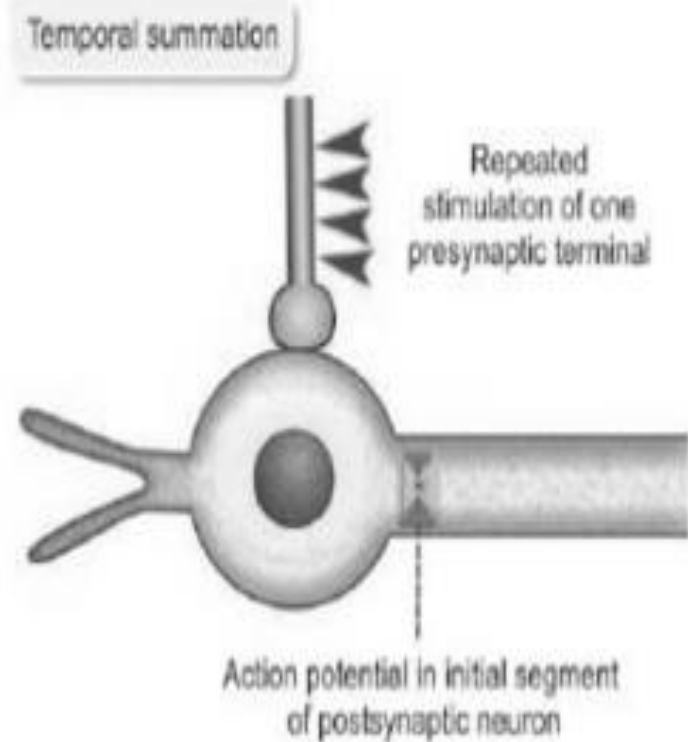


Summation

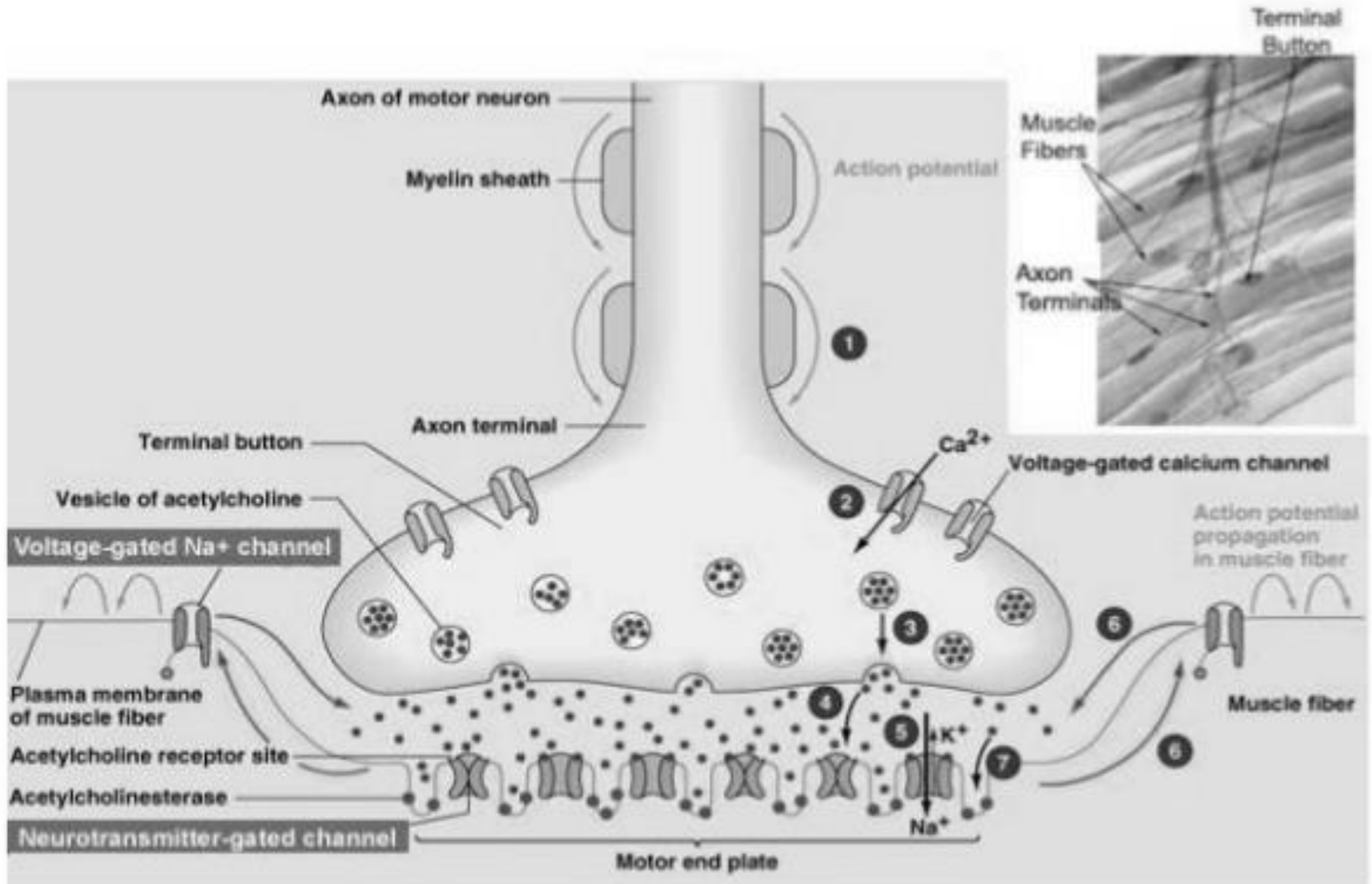
▶ SPATIAL SUMMATION



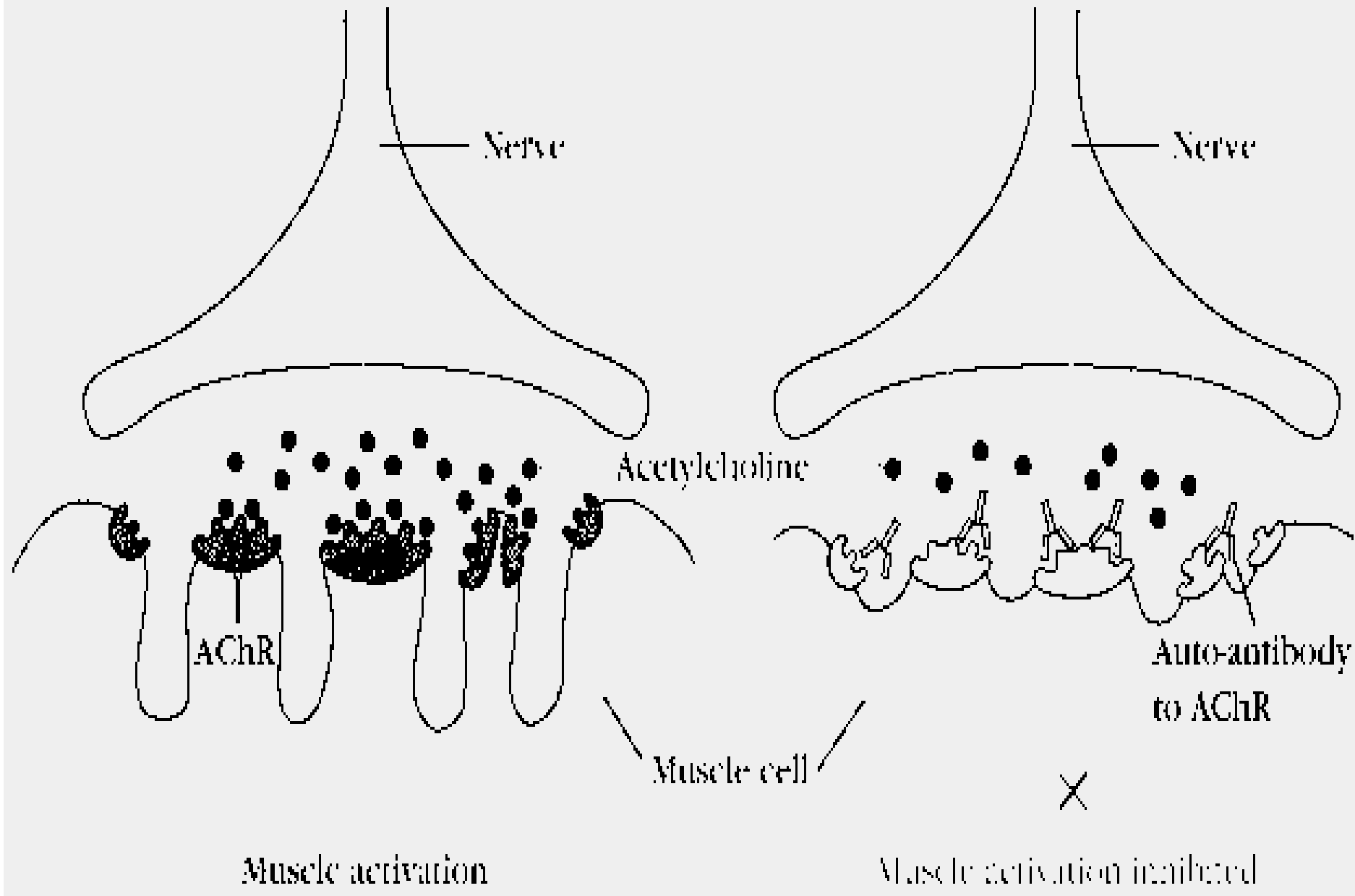
▶ TEMPORAL SUMMATION



The Neuromuscular Junction



BLOCKING AUTO-ANTIBODIES (Myasthenia gravis)



Symptoms of Myasthenia Gravis

First noticeable sign (in most cases)

- Weakness of the eye muscles

Other possible first signs

- Difficulty swallowing
- Slurred speech

Symptoms, variable in type and severity

- Drooping of one or both eyelids (ptosis)
- Blurred or double vision (diplopia)
- Unstable or waddling gait
- Change in facial expression
- Difficulty in swallowing
- Shortness of breath
- Impaired speech (dysarthria)
- Weakness in the arms, hands, fingers, legs, and neck.

