

Orange pentagon Potassium ion

Blue circle Sodium ion

White circle Calcium ion

Pink triangle Acetylcholinesterase

Green triangle Acetylcholine

Light blue/purple channel Gated sodium channel

Grey Y-shape Nicotinic receptor

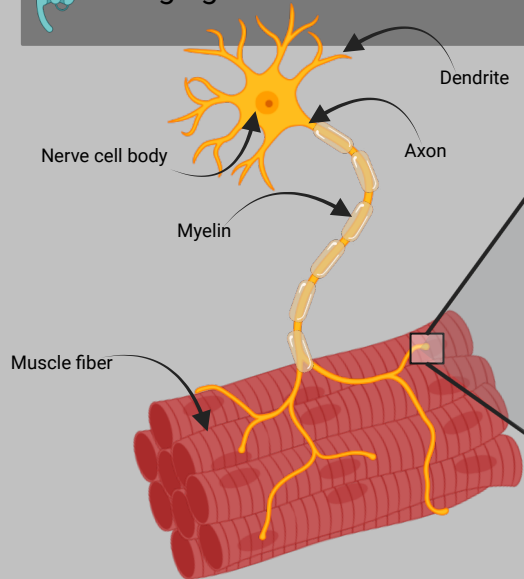
Teal channel Voltage-gated calcium channel

- 1 An action potential arrives at the axon terminal of the motor neuron
- 2 Voltage-gated calcium channels open. Calcium enters the presynaptic terminal
- 3 Entry of calcium into the presynaptic terminal causes acetylcholine release by exocytosis

- 4 ACh moves across the synaptic cleft and binds to the receptors on the motor end-plate causing them to open
- 5 Sodium moves into the muscle fiber while potassium moves out through the open receptors. More sodium ions enter than potassium ions exit.

- 6 Ion movement across the membrane through receptors causes a local change in the membrane potential (end plate potential)
- 7 Acetylcholinesterase breaks down ACh in the synaptic cleft and diffuses it away terminating its effects

## Neuromuscular Junction



Synapse

