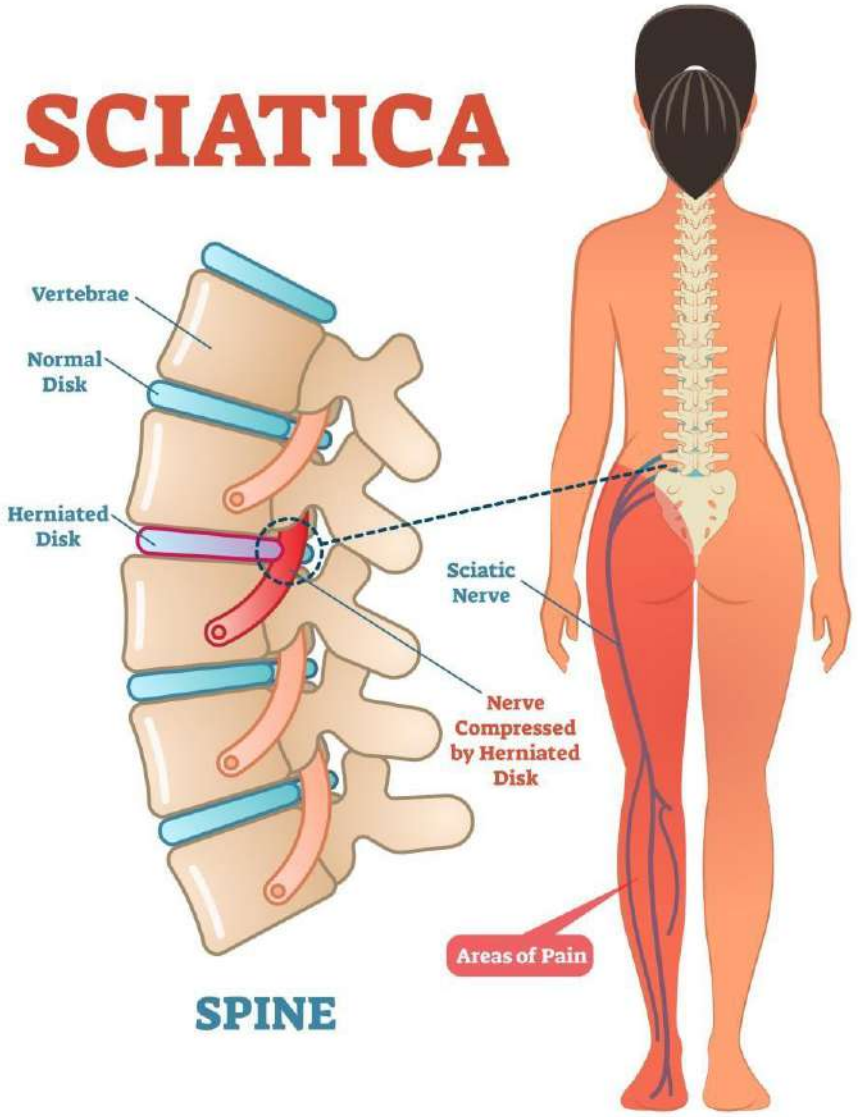
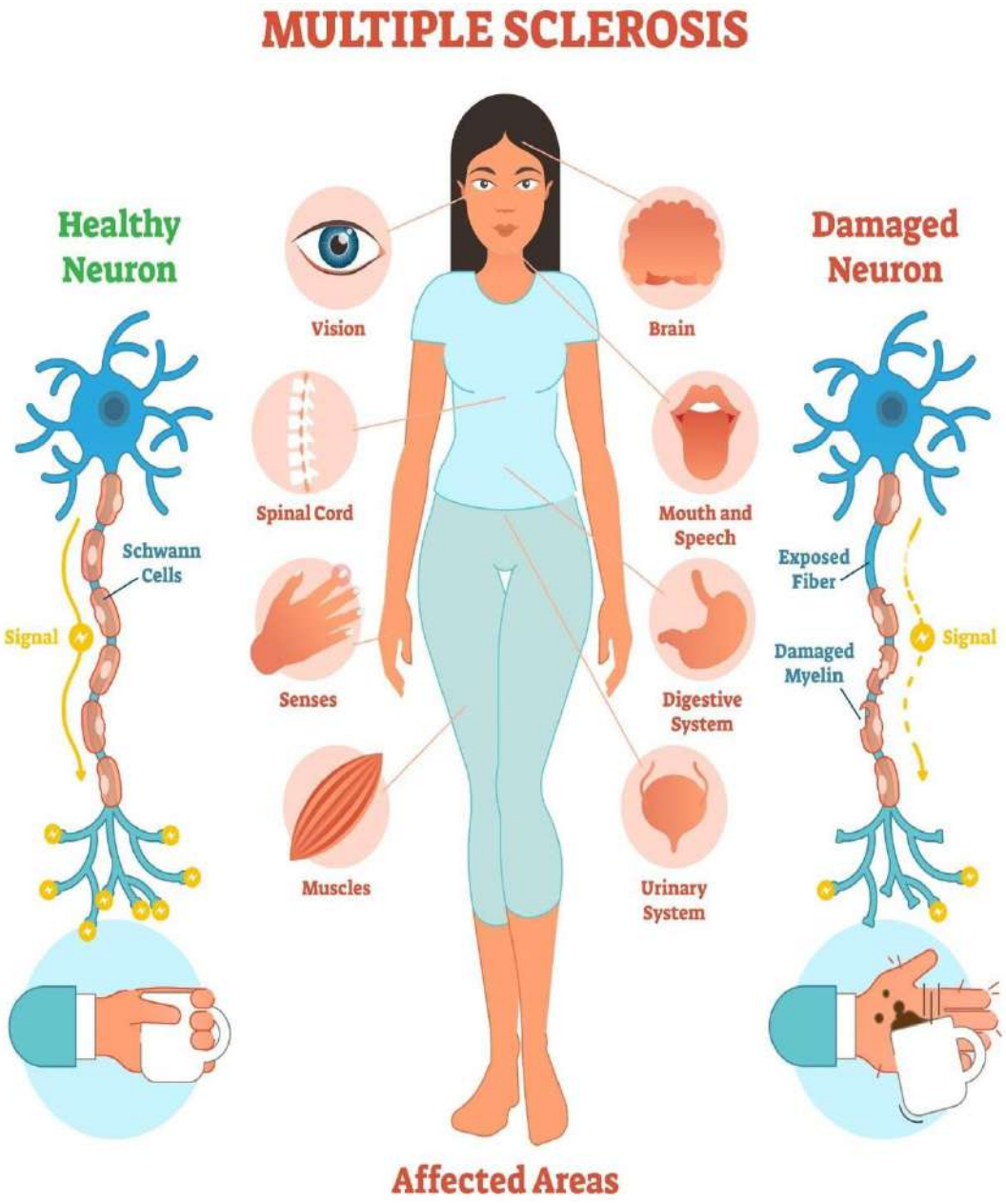
Disorders of the nervous system



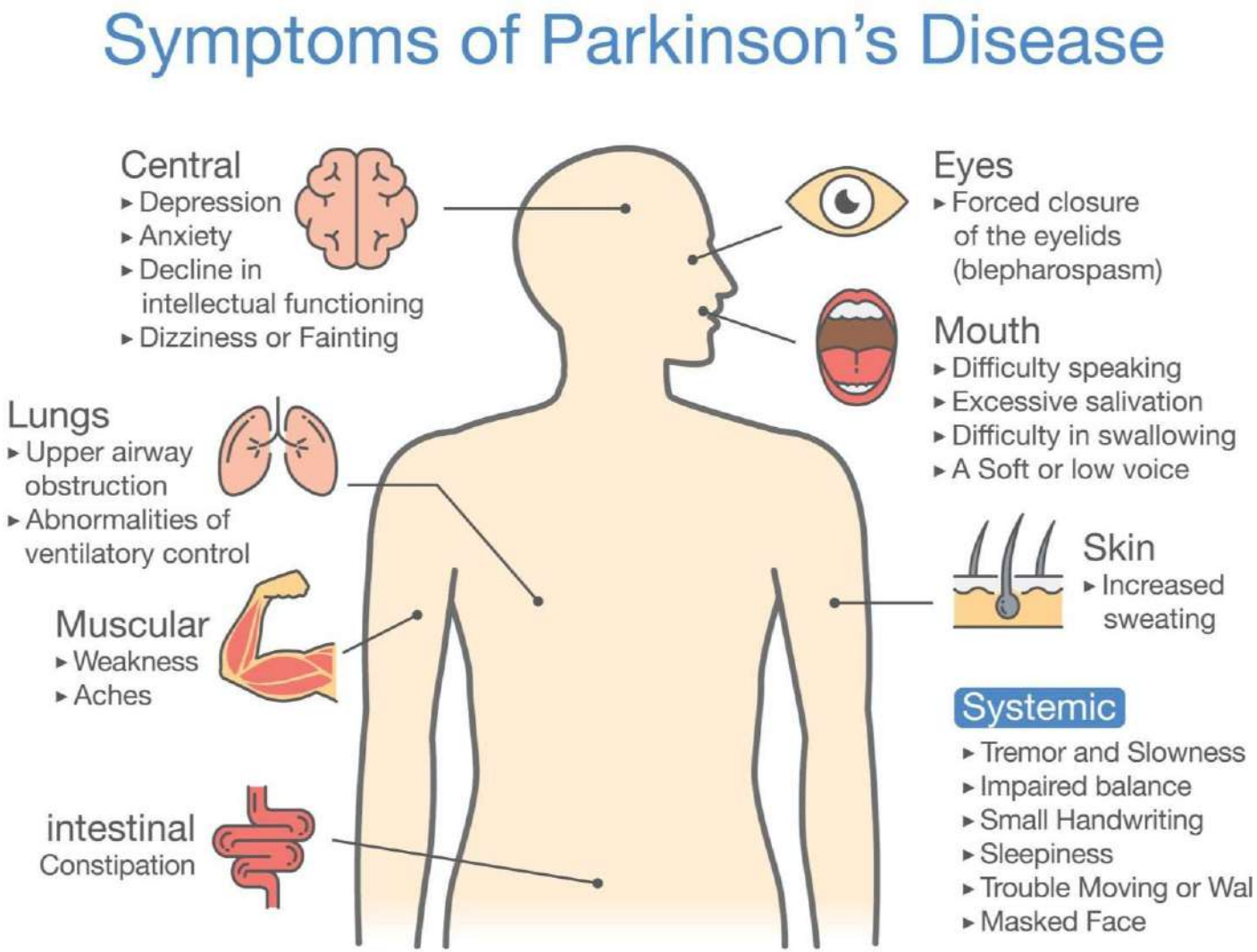

SCIATICA
Vertebrae
Normal Disk
Herniated Disk
Sciatic Nerve
Nerve Compressed by Herniated Disk
Areas of Pain
SPINE

- Three times more common in women than in men
- Young age
- Autoimmune
- Loss of myelin sheath
- Muscle weakness
- Vision problem
- Muscle spasticity
- Tremor
- Incontinence



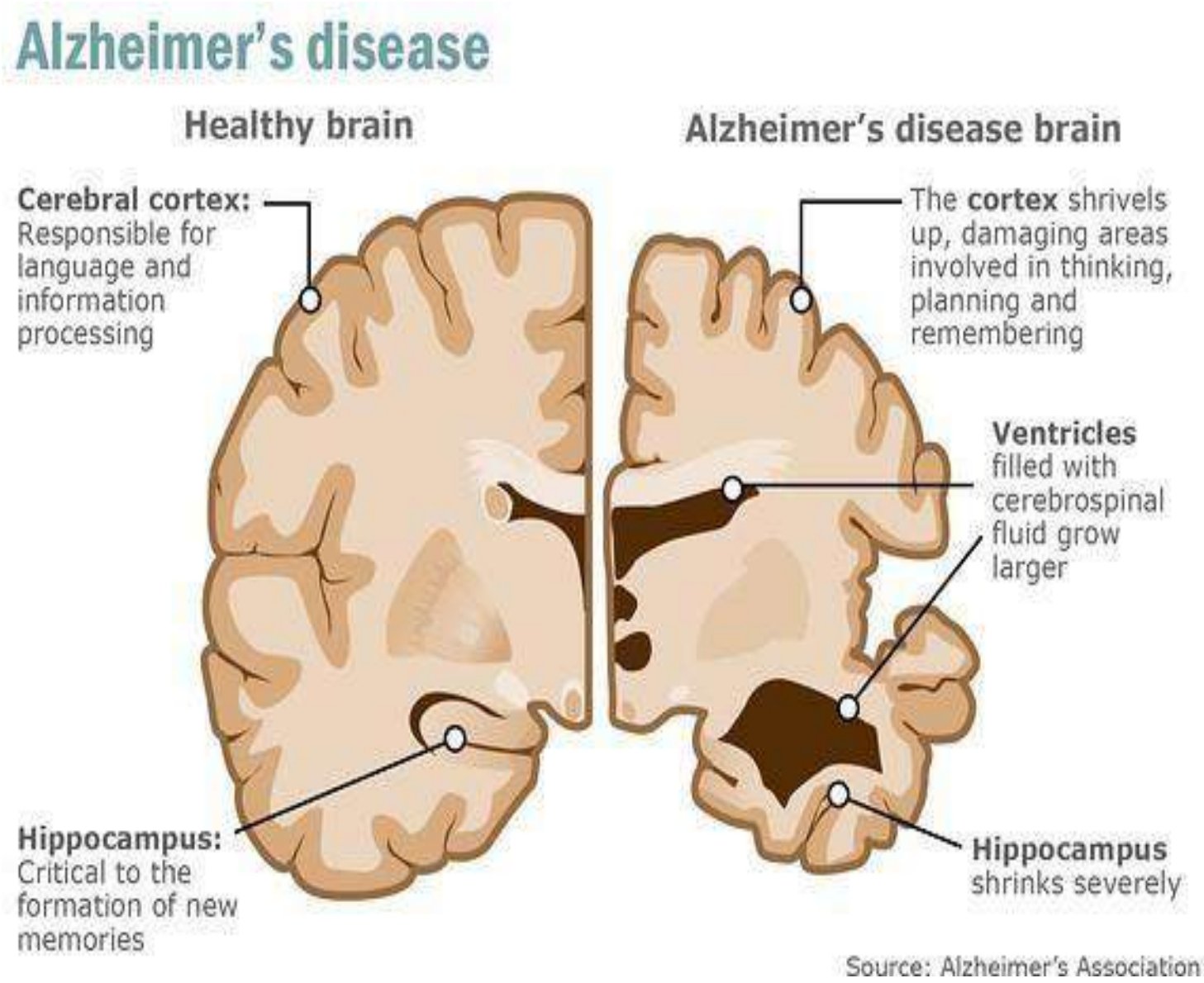
Parkinson disease

- Lack of dopamine
- Tremor
- Rigidity
- Slowness in movement



Alzheimer`s disease

- Progressive
- Over 60`s
- Leading type of dementia
- Memory loss
- Self care problem
- Language problem
- Disorientation

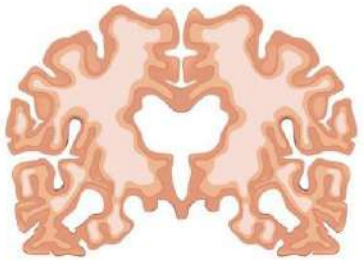


Progression of Alzheimer's Disease

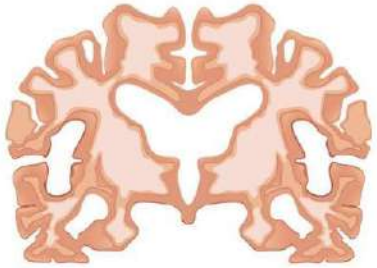




Healthy Brain

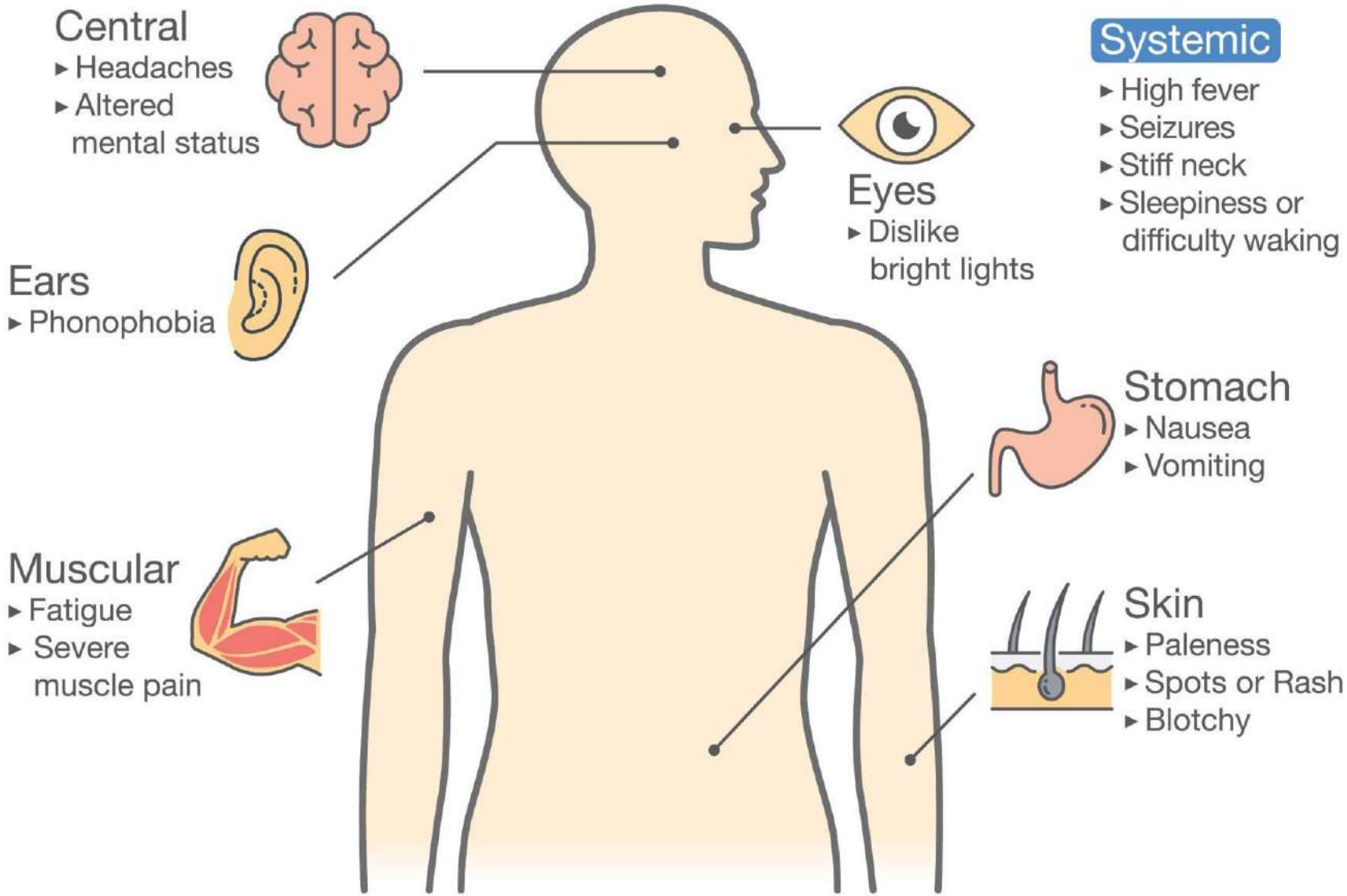


Mild Alzheimer's Disease

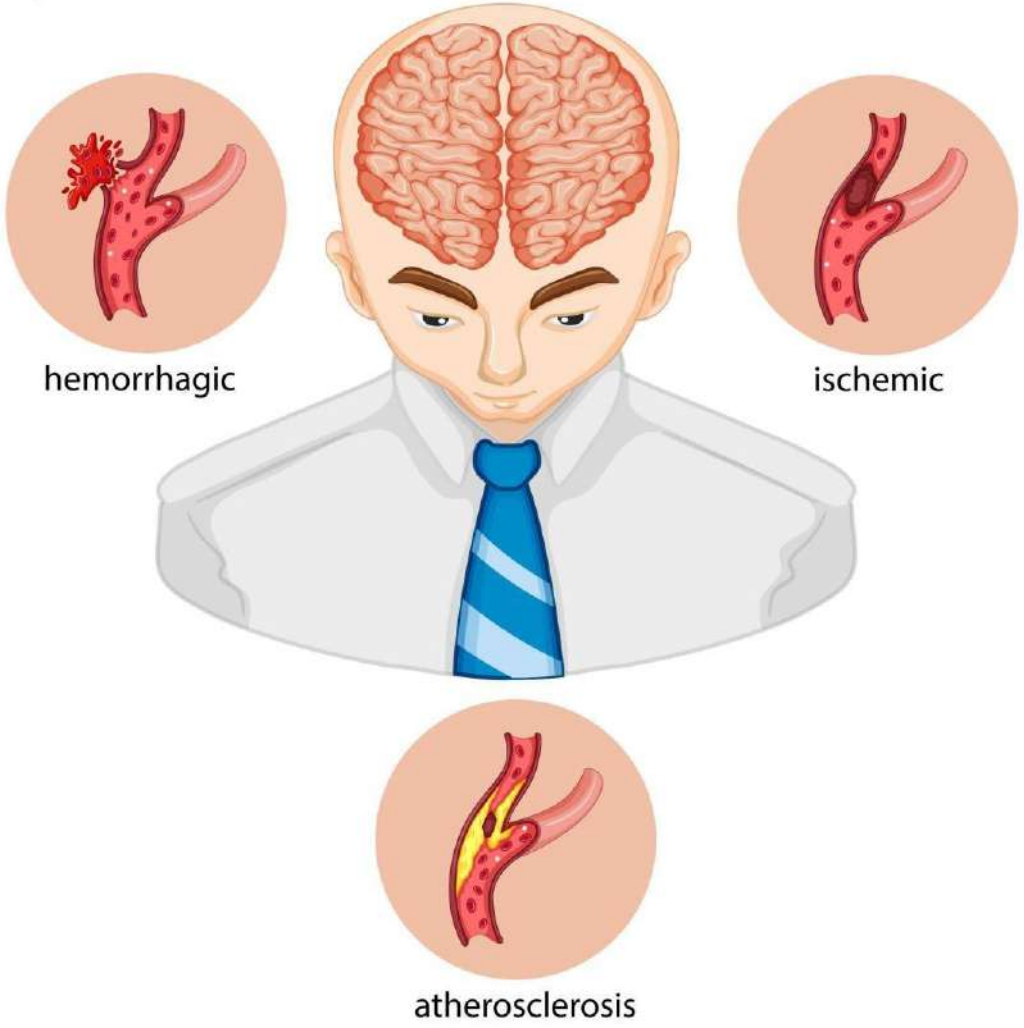


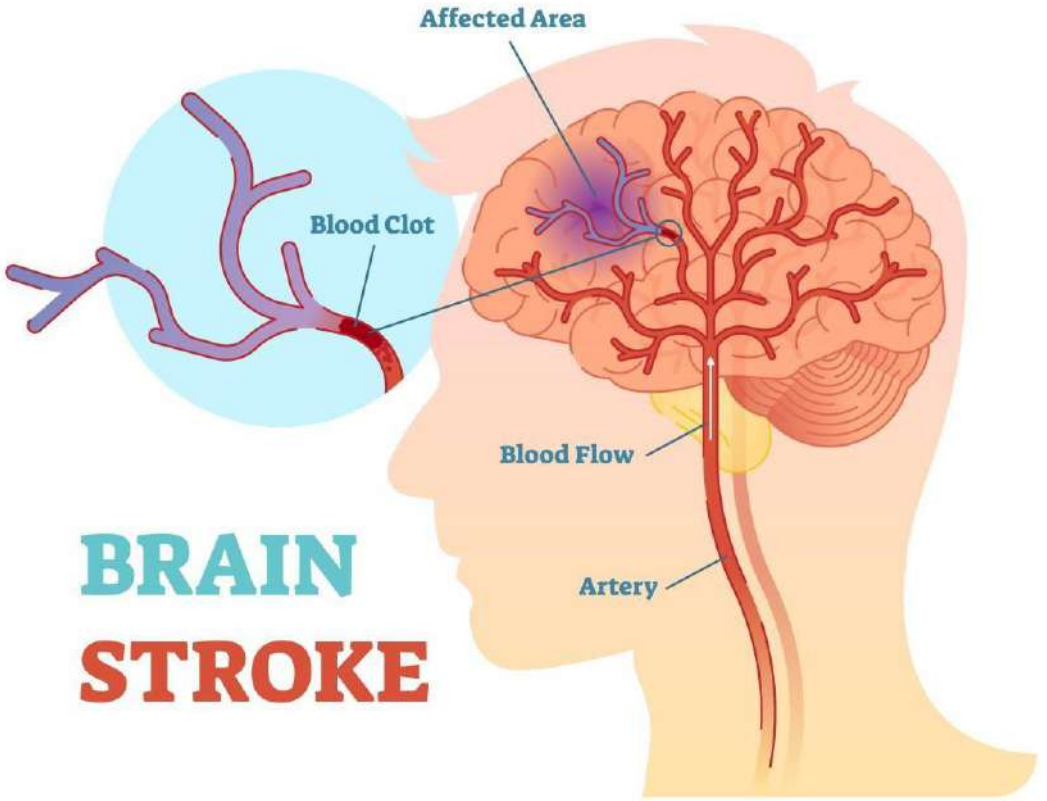
Severe Alzheimer's Disease

Symptoms of Meningitis

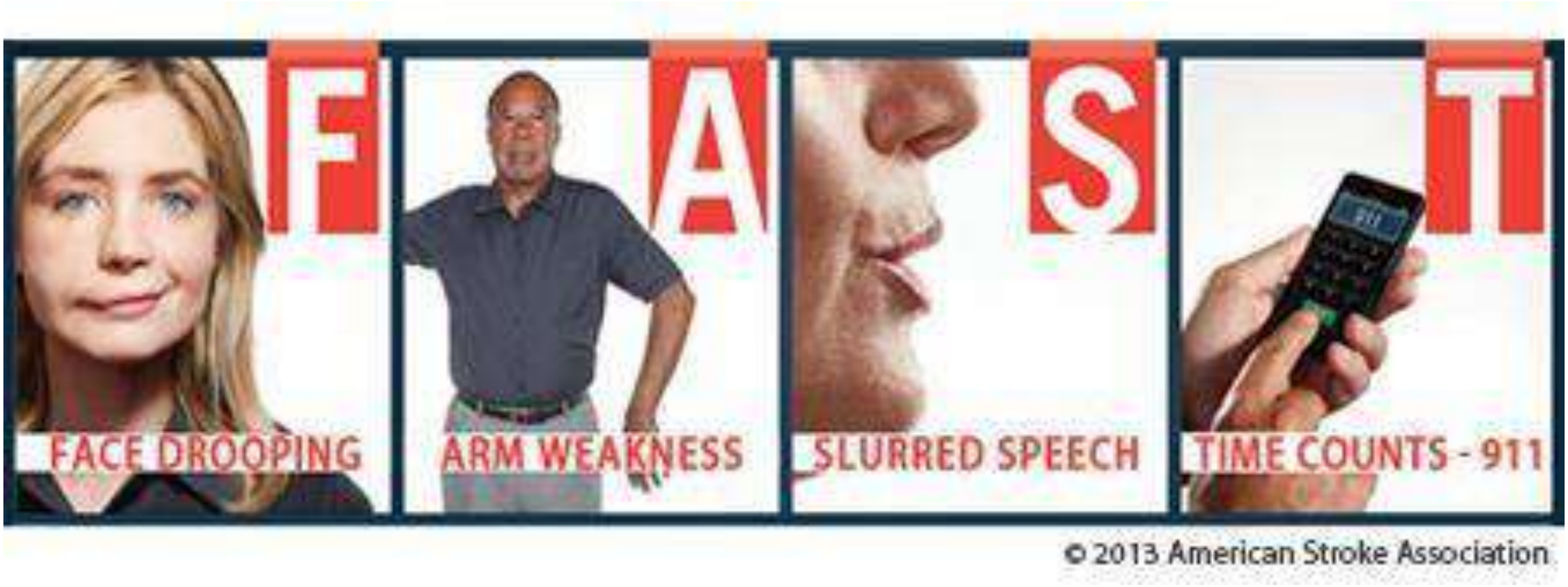


Types of human brain stroke

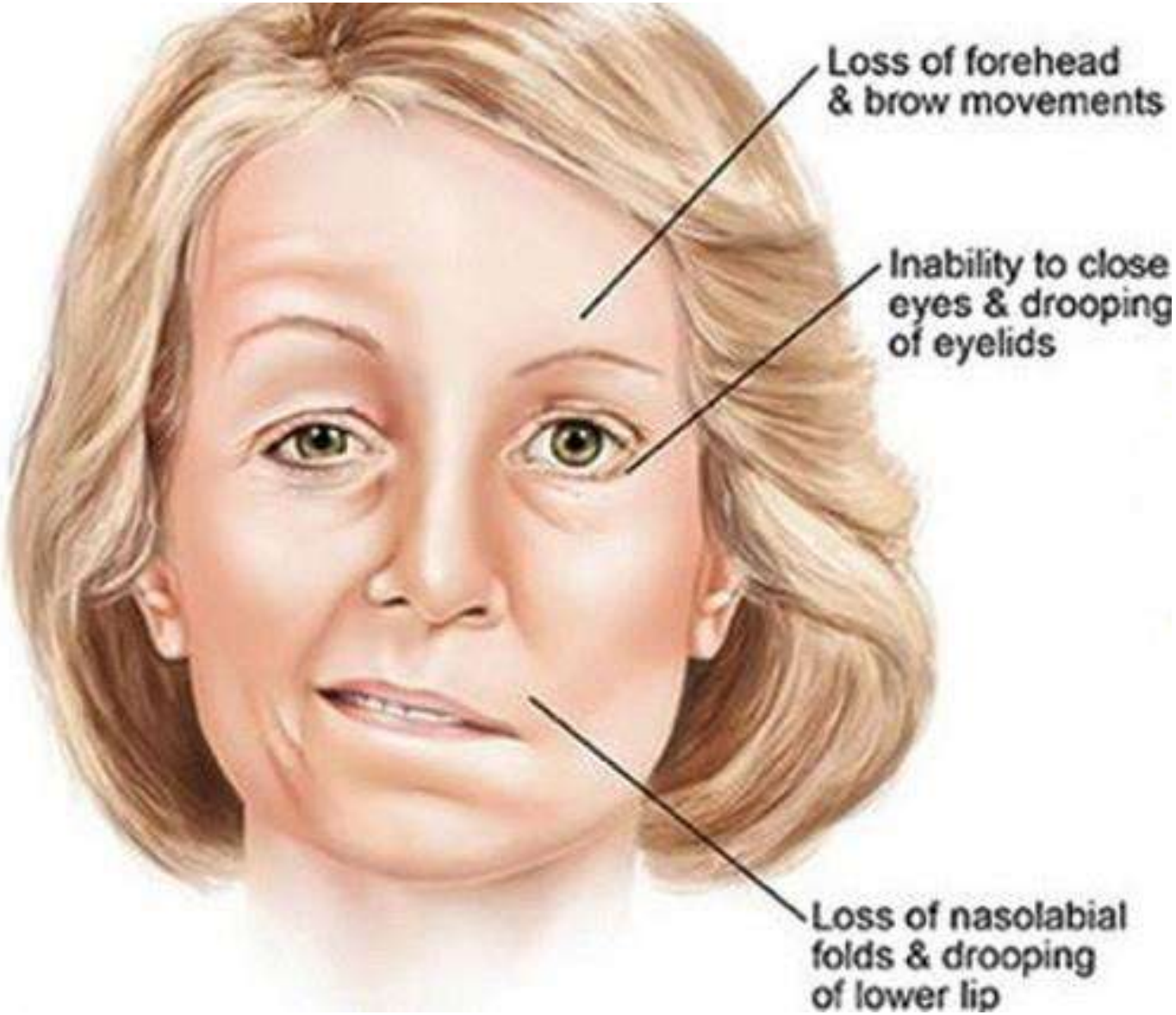




STROKE


F
FACE DROOPING
A
ARM WEAKNESS
S
SLURRED SPEECH
T
TIME COUNTS - 911
© 2013 American Stroke Association

Bell’s Palsy Injury or infctionof the facial nerve



Motor neurone disease (MND)/ Amyotrophic lateral sclerosis (ALS)



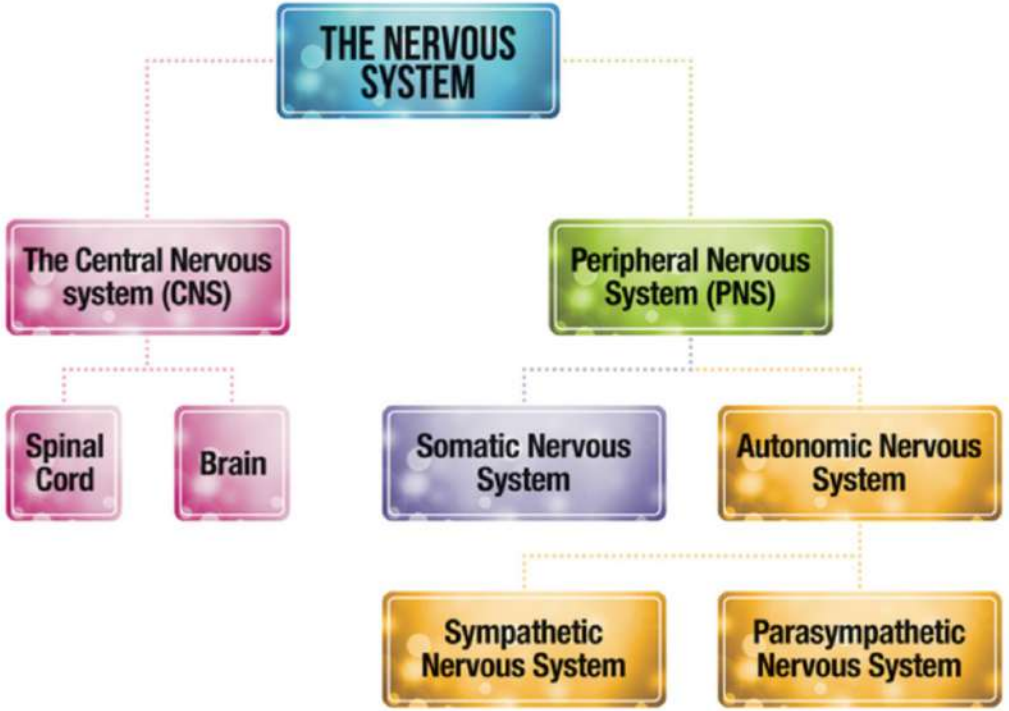
Stress

- Method to reacting to the challenge



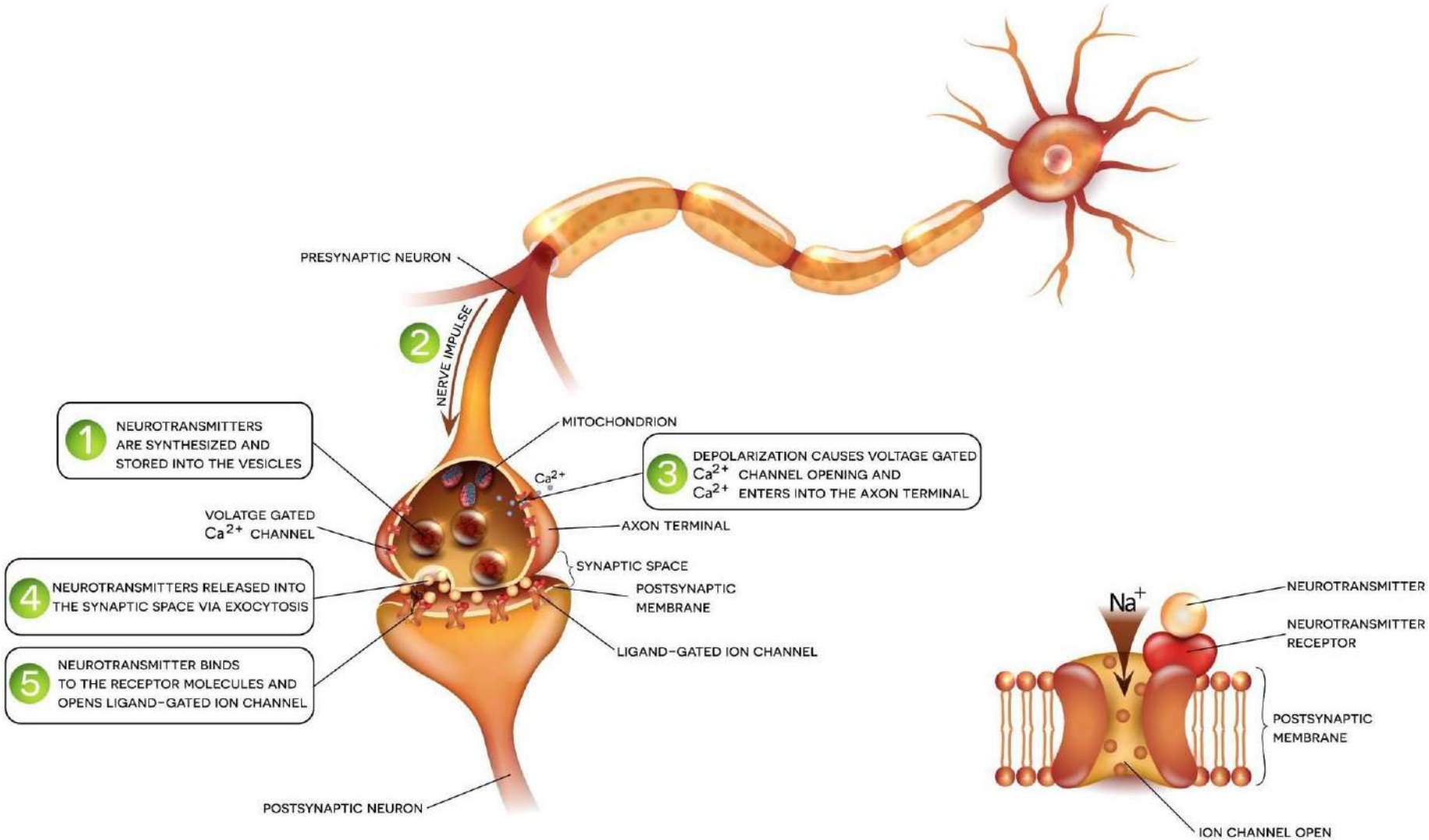
Recap

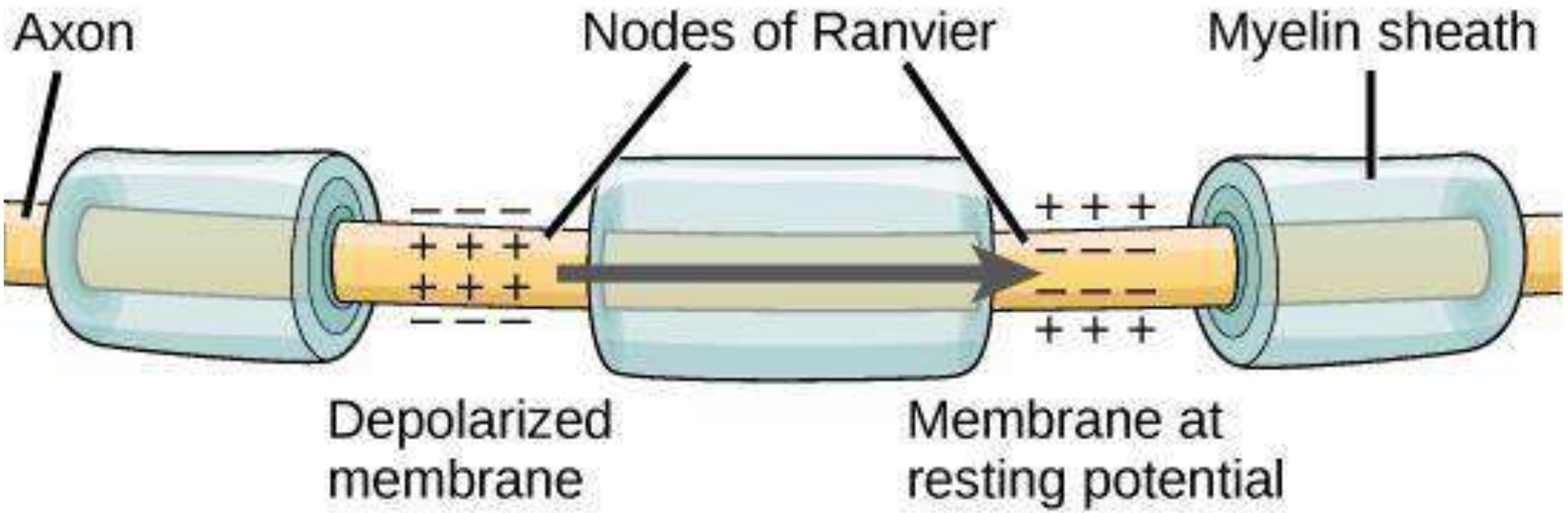
- Neurons – structure
- Nerve impulse conduction
- Motor / sensory / mixed
- CNS:
  - Brain – cerebrum, cerebellum, hypothalamus, brain stem
  - Meninges
  - Spinal cord
- PNS:
  - Cranial nerves (12 pairs)
  - Spinal nerves (31 pa
  - Somatic NS
  - Autonomic NS
- Disorders



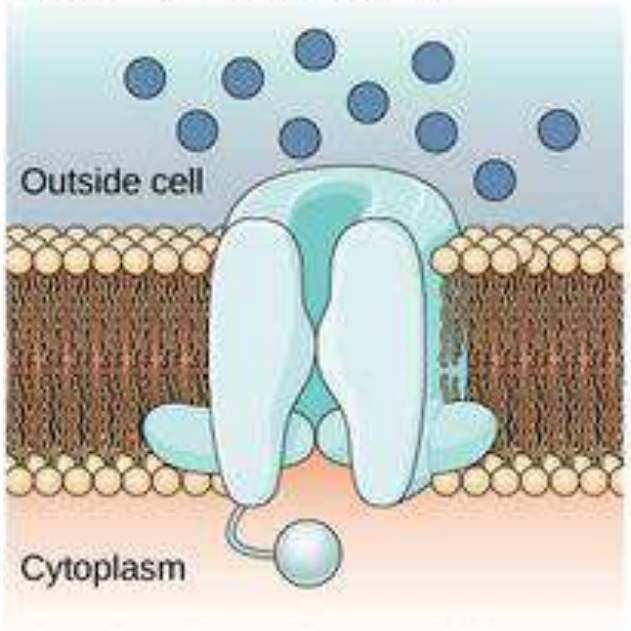
Appendix

THE SYNAPSE

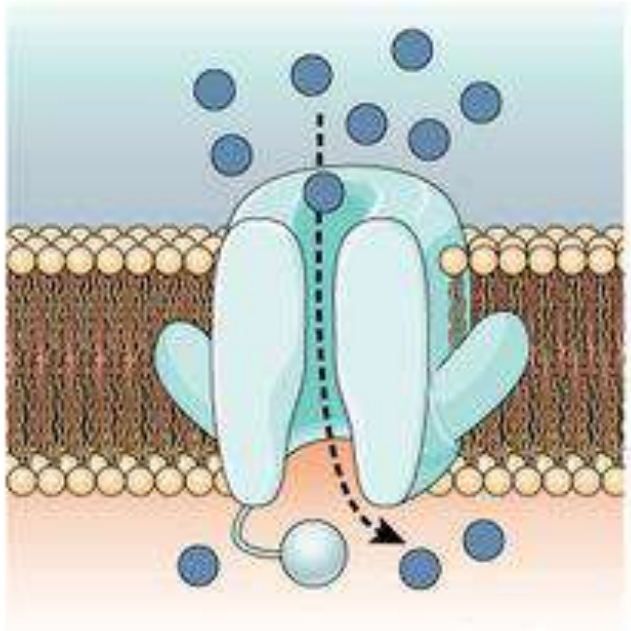

PRESYNAPTIC NEURON
2
NERVE IMPULSE
1
NEUROTRANSMITTERS ARE SYNTHESIZED AND STORED INTO THE VESICLES
MITOCHONDRION
3
DEPOLARIZATION CAUSES VOLTAGE GATED Ca^{2+} CHANNEL OPENING AND Ca^{2+} ENTERS INTO THE AXON TERMINAL
Ca^{2+}
VOLATGE GATED Ca^{2+} CHANNEL
AXON TERMINAL
SYNAPTIC SPACE
4
NEUROTRANSMITTERS RELEASED INTO THE SYNAPTIC SPACE VIA EXOCYTOSIS
POSTSYNAPTIC MEMBRANE
5
NEUROTRANSMITTER BINDS TO THE RECEPTOR MOLECULES AND OPENS LIGAND-GATED ION CHANNEL
LIGAND-GATED ION CHANNEL
POSTSYNAPTIC NEURON
Na^{+}
NEUROTRANSMITTER
NEUROTRANSMITTER RECEPTOR
POSTSYNAPTIC MEMBRANE
ION CHANNEL OPEN


Axon
Nodes of Ranvier
Myelin sheath
Depolarized membrane
Membrane at resting potential

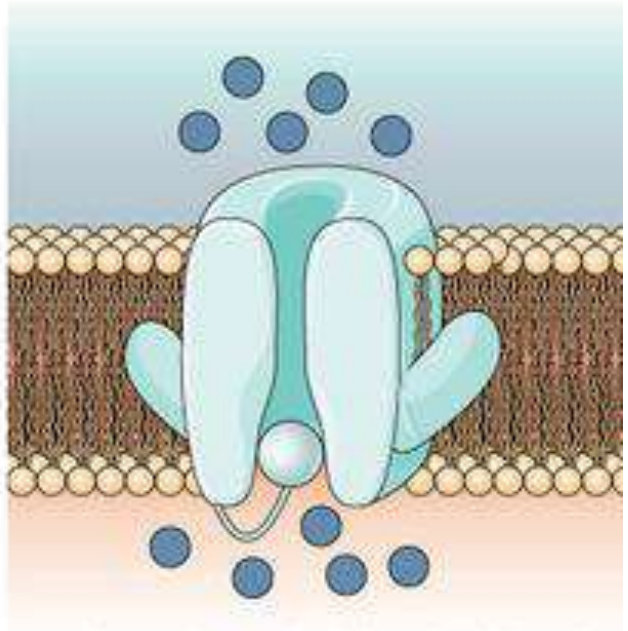
Voltage-gated Na^+ Channels



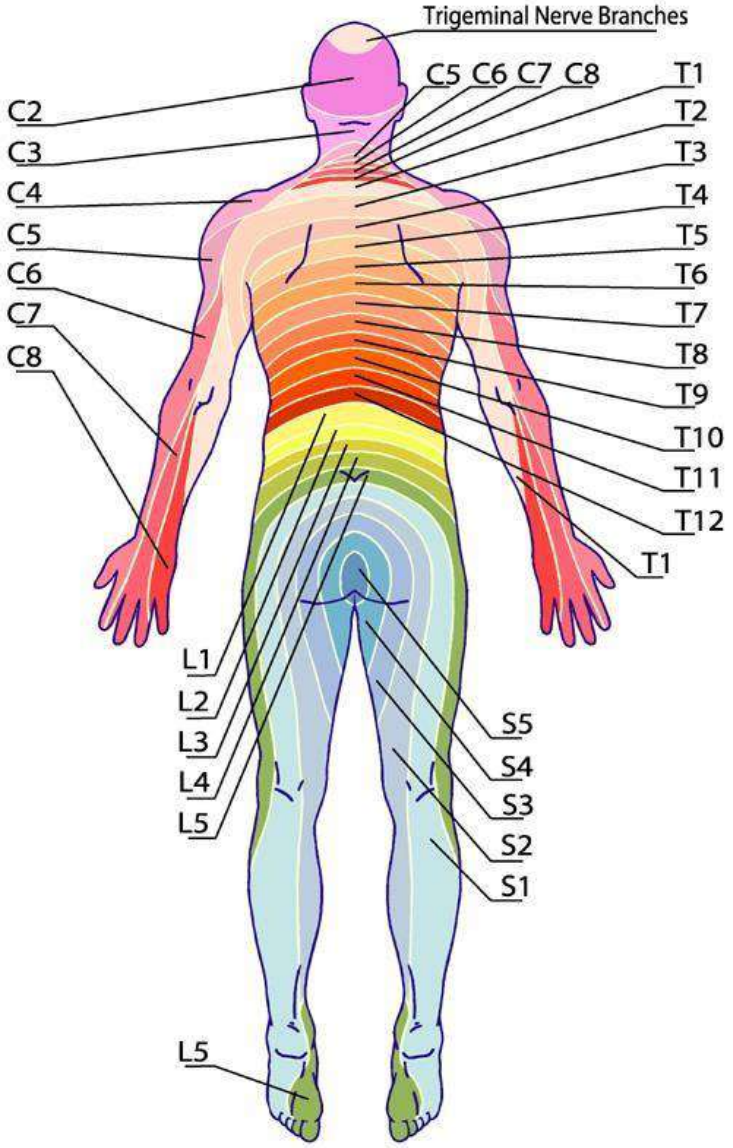
Closed At the resting potential, the channel is closed.

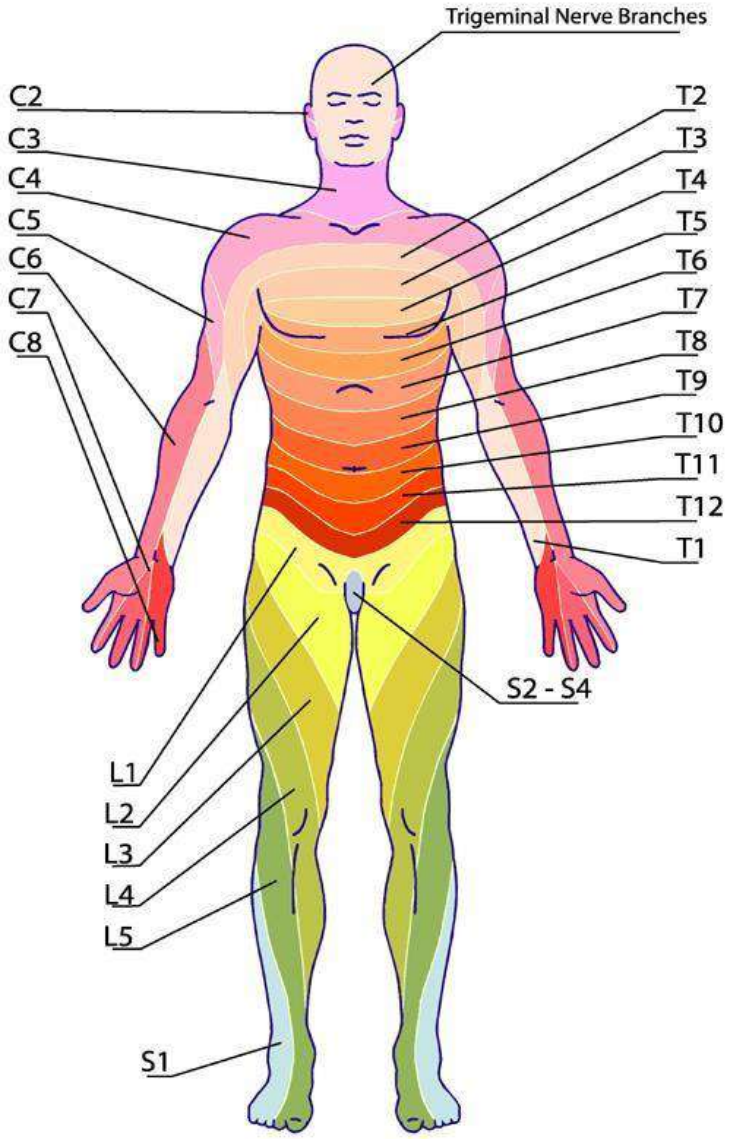


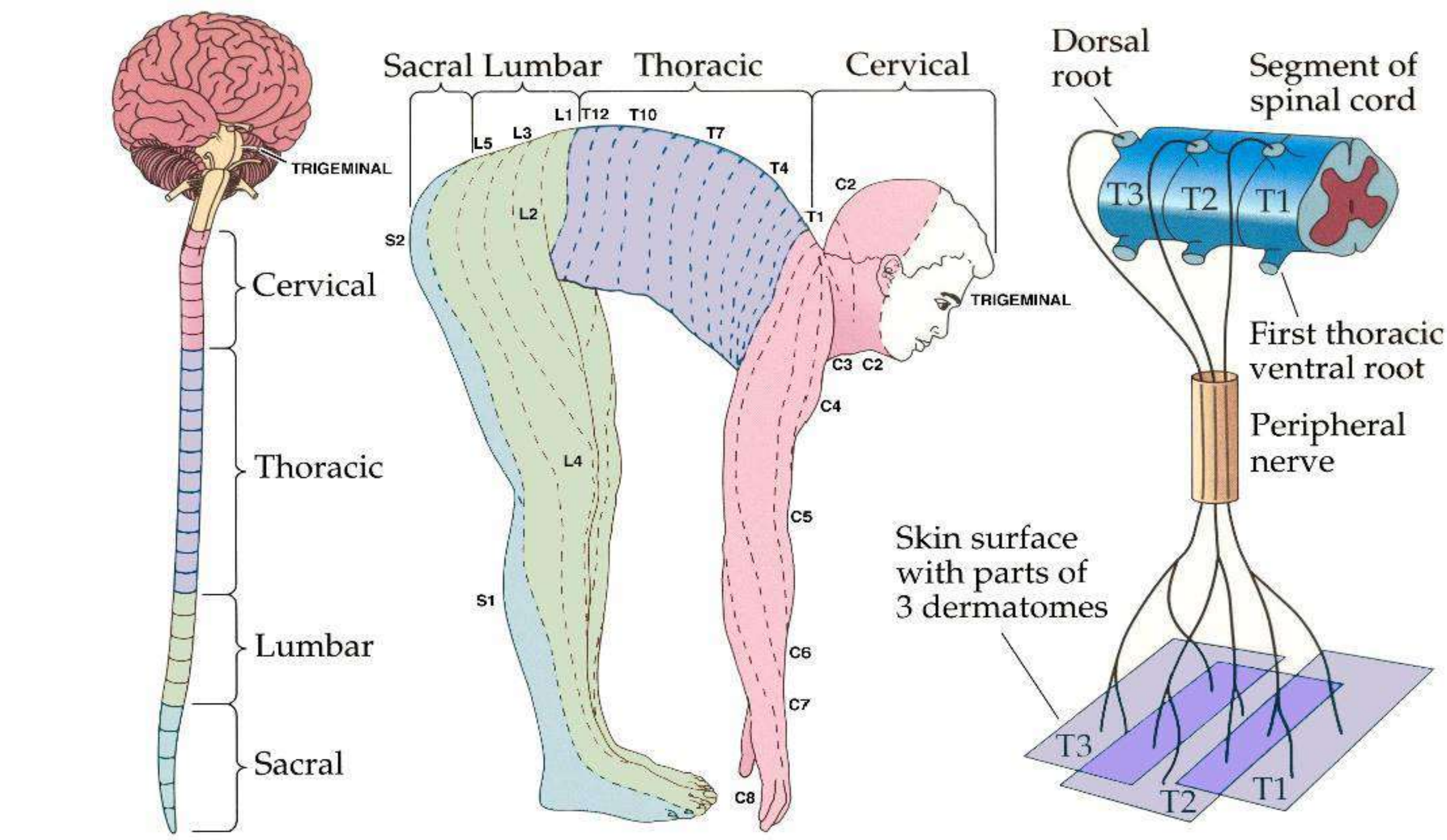
Open In response to a nerve impulse, the gate opens and Na^+ enters the cell.



Inactivated For a brief period following activation, the channel does not open in response to a new signal.


Trigeminal Nerve Branches
C2
C3
C4
C5
C6
C7
C8
C5 C6 C7 C8
T1
T2
T3
T4
T5
T6
T7
T8
T9
T10
T11
T12
T1
L1
L2
L3
L4
L5
S5
S4
S3
S2
S1
L5


Trigeminal Nerve Branches
C2
C3
C4
C5
C6
C7
C8
T2
T3
T4
T5
T6
T7
T8
T9
T10
T11
T12
T1
S2 - S4
L1
L2
L3
L4
L5
S1


TRIGEMINAL
Cervical
Thoracic
Lumbar
Sacral
Sacral Lumbar Thoracic Cervical
L5 L3 L1 T12 T10 T7 T4 T1 C2
S2 L2
L4
S1
C3 C2
C4
C5
C6
C7
C8
TRIGEMINAL
Dorsal root
Segment of spinal cord
T3 T2 T1
First thoracic ventral root
Peripheral nerve
Skin surface with parts of 3 dermatomes
T3
T2
T1