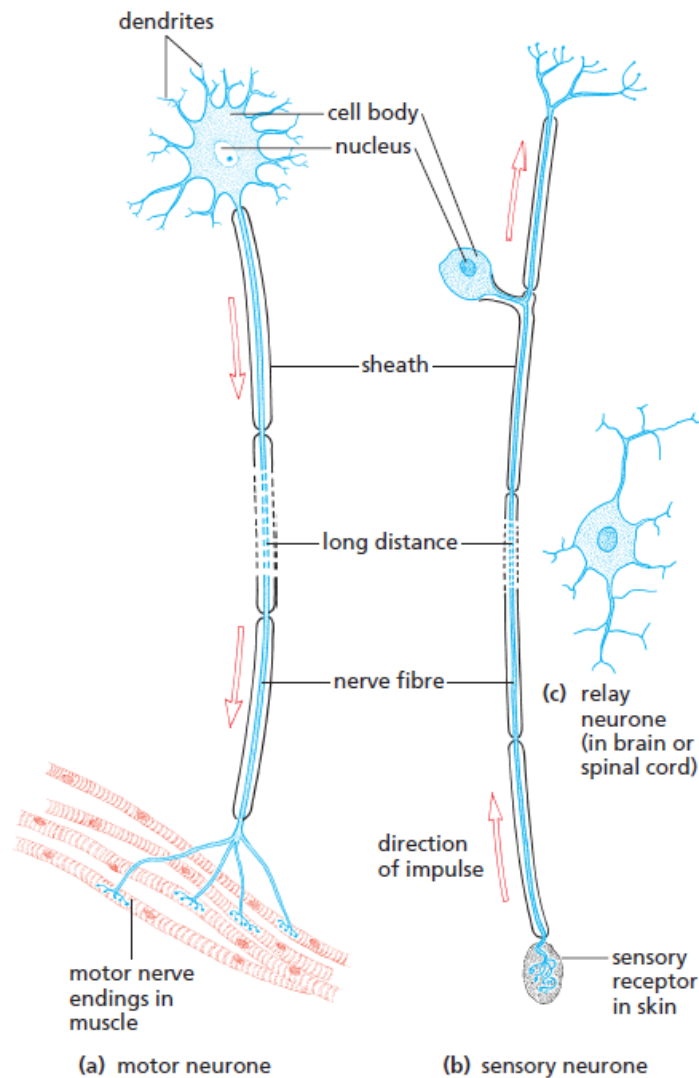


LESSON 1 COORDINATION AND RESPONSE

1. WHAT ARE KINDS OF NERVE CELLS

- Motor neurones** carry impulses from the central nervous system to muscles and glands
- Sensory neurones** carry impulses from the sense organs to the central nervous system.
- Relay neurones** (also called multi-polar or connector neurones) are neither sensory nor motor but make connections to other neurones inside the central nervous system.



2. WHAT IS CO-ORDINATION?

Co-ordination is the way all the organs and systems of the body are made to work efficiently together

3. DESCRIBE THE MAMMALIAN NERVOUS SYSTEM

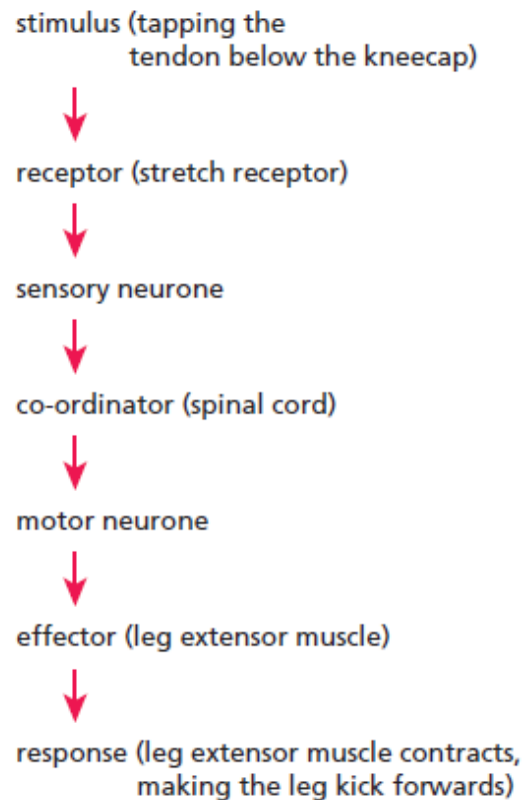
- a. Central Nervous System: brain and spinal cord. The role is coordination
- b. Peripheral Nervous System: nerves – which connect all parts of the body to the central nervous system.

4. DESCRIBE THE ROLE OF THE NERVOUS SYSTEM

Coordination and regulation of body functions

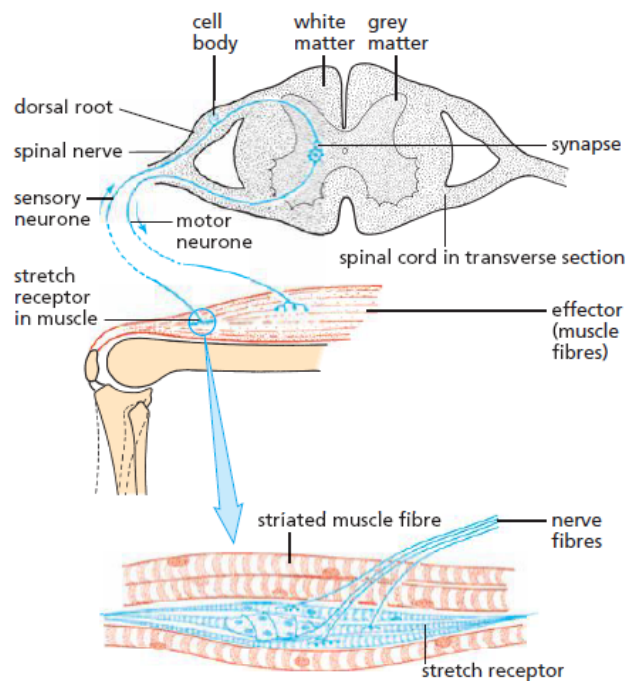
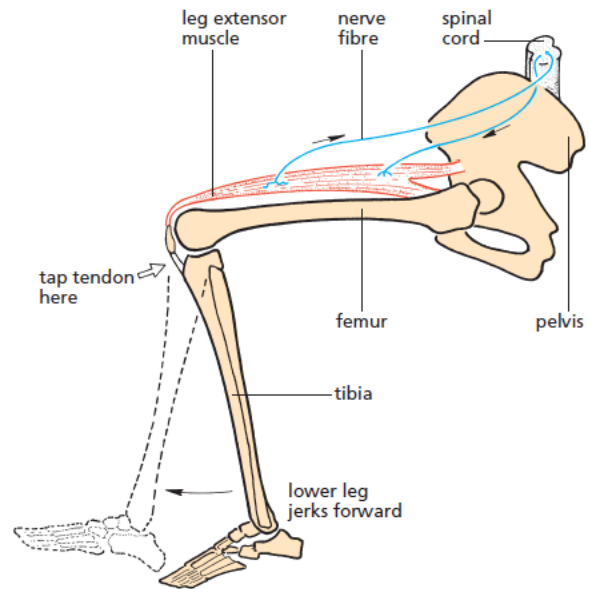
5. DESCRIBE A SIMPLE REFLEX ARC

The nervous pathway for reflexes is called a reflex arc.



Reflex of Knee Jerk

- Hitting the tendon stretches the muscle and stimulates a stretch receptor.
- The receptor sends off impulses in a sensory fibre.
- These sensory impulses travel in the nerve to the spinal cord.
- In the central region of the spinal cord, the sensory fibre passes the impulse across a synapse to a motor neurone, which conducts the impulse down the fibre, back to the thigh muscle (the effector).
- The arrival of the impulses at the muscle makes it contract and jerk the lower part of the limb forward. You are aware that this is happening (which means that sensory impulses must be reaching the brain), but there is nothing you can do to stop it.



6. DESCRIBE A REFLEX ACTION

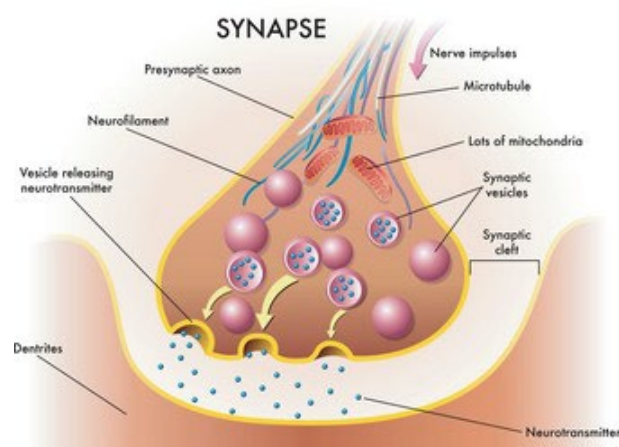
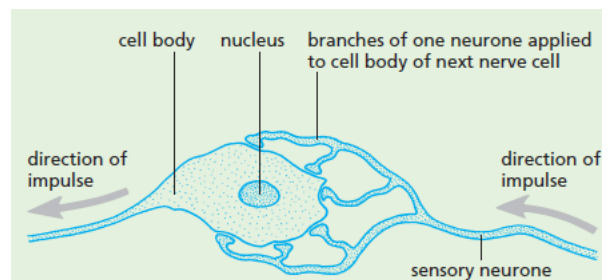
- A reflex action is an automatic response to a stimulus. (A stimulus is a change in the external or internal environment of an organism.)
- It provides a means of rapidly integrating and coordinating a stimulus with the response of an effector (a muscle or a gland) without the need for thought or a decision
- Example: When a particle of dust touches the cornea of the eye, you will blink; you cannot prevent yourself from blinking.

7. WHAT IS A SYNAPSE?

A junction between two neurones.

8. DESCRIBE THE STRUCTURE OF A SYNAPSE

- There are vesicles containing neurotransmitter molecules in the neuron before the gap
- The synaptic gap (known as synaptic cleft): the gap between two neurons
- Receptor proteins on the surface of the neuron after the gap



9. DESCRIBE THE EVENTS AT A SYNAPSE

- An impulse stimulates the release of neurotransmitter molecules from vesicles into the synaptic gap
- The neurotransmitter molecules diffuse across the gap
- Neurotransmitter molecules bind with receptor proteins on the next neurone
- An impulse is then stimulated in the next neurone

10. WHAT IS THE IMPORTANCE OF THE SYNAPSE?

It ensures that impulses travel in one direction only