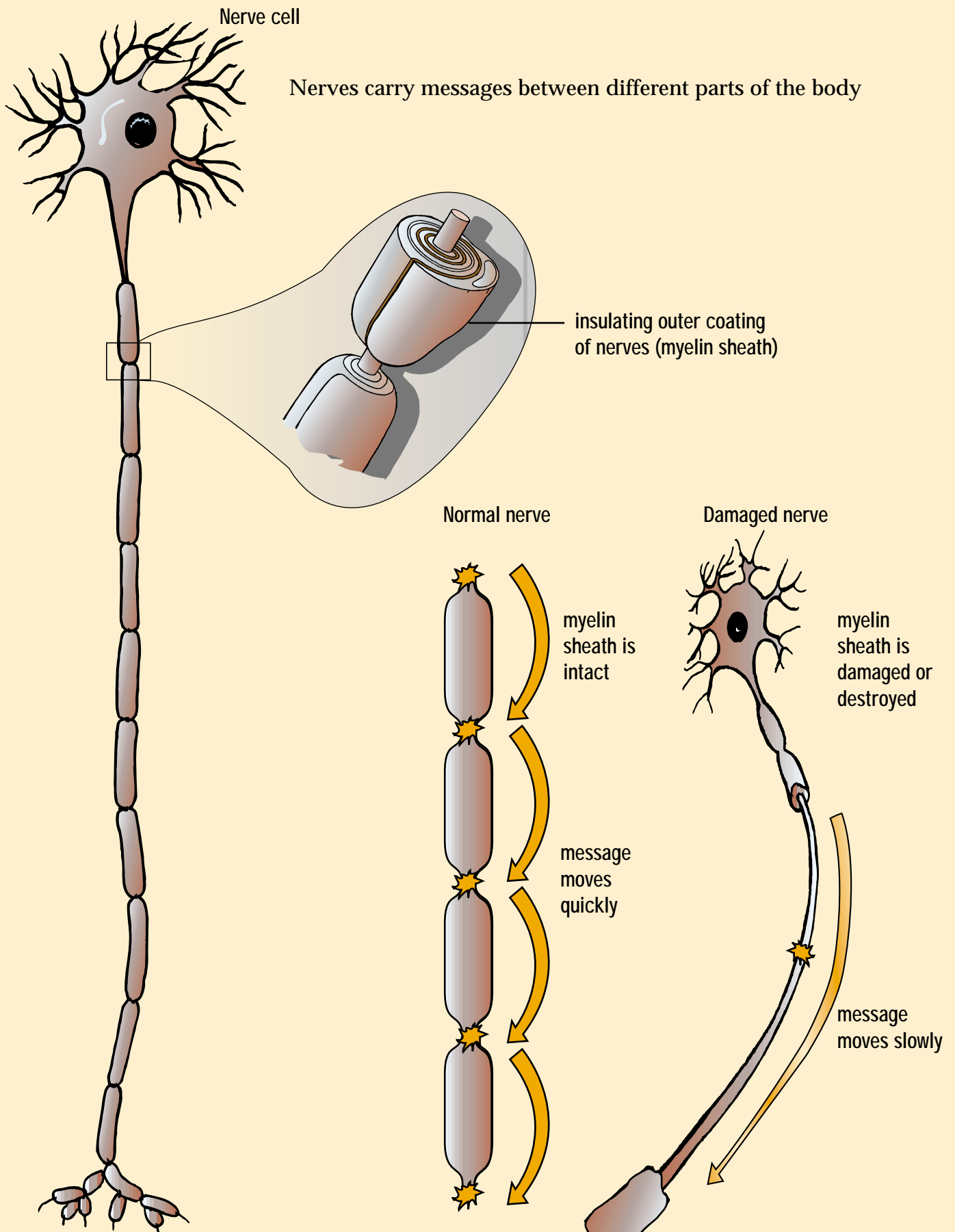
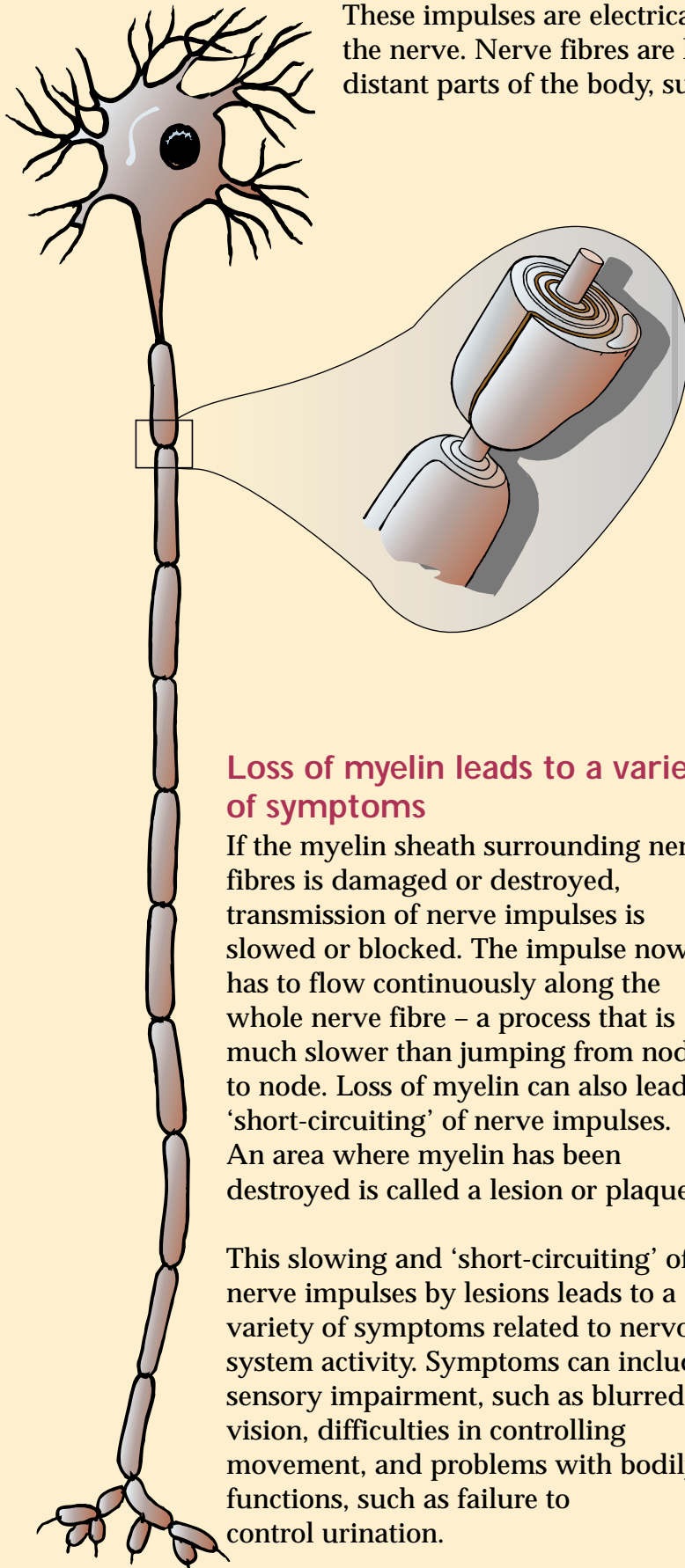


The importance of myelin



Nerve cells transmit impulses

Nerve cells have a long, thin, flexible fibre that transmits impulses. These impulses are electrical signals that travel along the length of the nerve. Nerve fibres are long to enable impulses to travel between distant parts of the body, such as the spinal cord and leg muscles.



Myelin speeds up impulses

Most nerve fibres are surrounded by an insulating, fatty sheath called myelin, which acts to speed up impulses. The myelin sheath contains periodic breaks called nodes of Ranvier.

By jumping from node to node, the impulse can travel much more quickly than if it had to travel along the entire length of the nerve fibre. Myelinated nerves can transmit a signal at speeds as high as 100 metres per second – as fast as a Formula One racing car.

Loss of myelin leads to a variety of symptoms

If the myelin sheath surrounding nerve fibres is damaged or destroyed, transmission of nerve impulses is slowed or blocked. The impulse now has to flow continuously along the whole nerve fibre – a process that is much slower than jumping from node to node. Loss of myelin can also lead to 'short-circuiting' of nerve impulses. An area where myelin has been destroyed is called a lesion or plaque.

This slowing and 'short-circuiting' of nerve impulses by lesions leads to a variety of symptoms related to nervous system activity. Symptoms can include sensory impairment, such as blurred vision, difficulties in controlling movement, and problems with bodily functions, such as failure to control urination.

