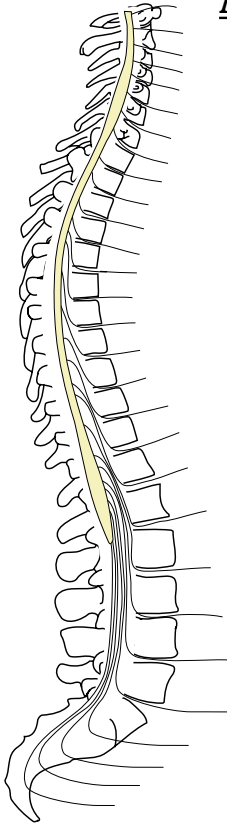


## THE SPINAL CORD AND ITS FUNCTION

(An Introduction)

### Anatomy

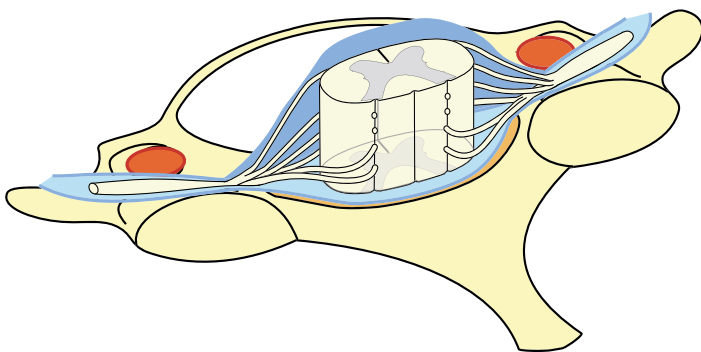


The Spinal Cord is the main cable from the brain that transmits the messages between the brain and limbs/organs. The Brainstem turns into the spinal cord at the top of the spine. The spinal cord stops at the disc between the 1st and 2nd lumbar vertebrae. The spinal canal that contains the cord in the thoracic and cervical regions also contains the nerves that leave the spinal cord. These nerves in the lumbar canal (after the spinal cord has stopped) are given the name Cauda Equina after the horses' tail that they look like.

The spinal cord gives off multiple rootlets that join to form nerves. The rootlets that come from the front of the cord are transmitting the information that drives your muscles. The rootlets on the back of the cord are bringing in information related to sensation from the skin and other areas.

Each group of rootlets form a nerve which leaves the spinal canal by passing through a hole in the side called a foramen.

The spinal canal is a bony tube made of rings of bone from each vertebra. The spinal cord is bathed by cerebrospinal fluid (C.S.F) and this is all surrounded by the Dura (a fibrous sheath that also covers the brain) The dura also forms a tube that joins the nerve root.

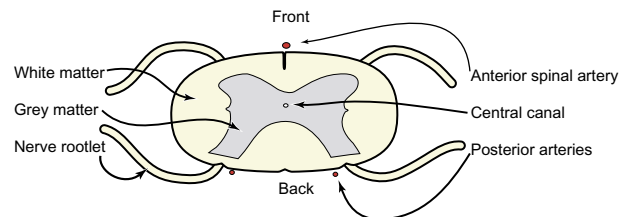


**Elevated Section of the Spinal Cord**

### The blood supply

Small blood vessels enter the spine through the holes that the nerves leave through. There are a few large vessels that enter. One comes in at the bottom of the thoracic spine on the left. Two large vessels come down from the vertebral artery (supplies the back of the brain). These two join to form the anterior spinal artery which runs the length of the cord. Two small vessels run along the back of the cord. All the vessels surround the cord and supply it from the outside to the middle.

### The Internal Structure



**Cross Section of the Spinal Cord**

In cross section the spinal cord is made up of white matter and grey matter. The white matter is the area that is responsible for the transmission of impulses up and down the cord and could be likened to a cable with multiple fibres (called tracts in the cord). The grey matter is where connections occur between the tracts and the nerve rootlets. The tracts are groups of fibres with each group being responsible for different things.

Sensation travels up to the brain in a group of tracts with different types of sensation travelling separately. Instructions to muscles travel down the cord in other tracts.

The area of white matter at the back of the cord between the grey matter is typically responsible for the delivering of information to the brain regarding balance and the position of the joints in the limbs.

