



# Medtronic

This information is intended for media professionals and investors

## **Spinal Function and Anatomy Fact Sheet**

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#### **Function**

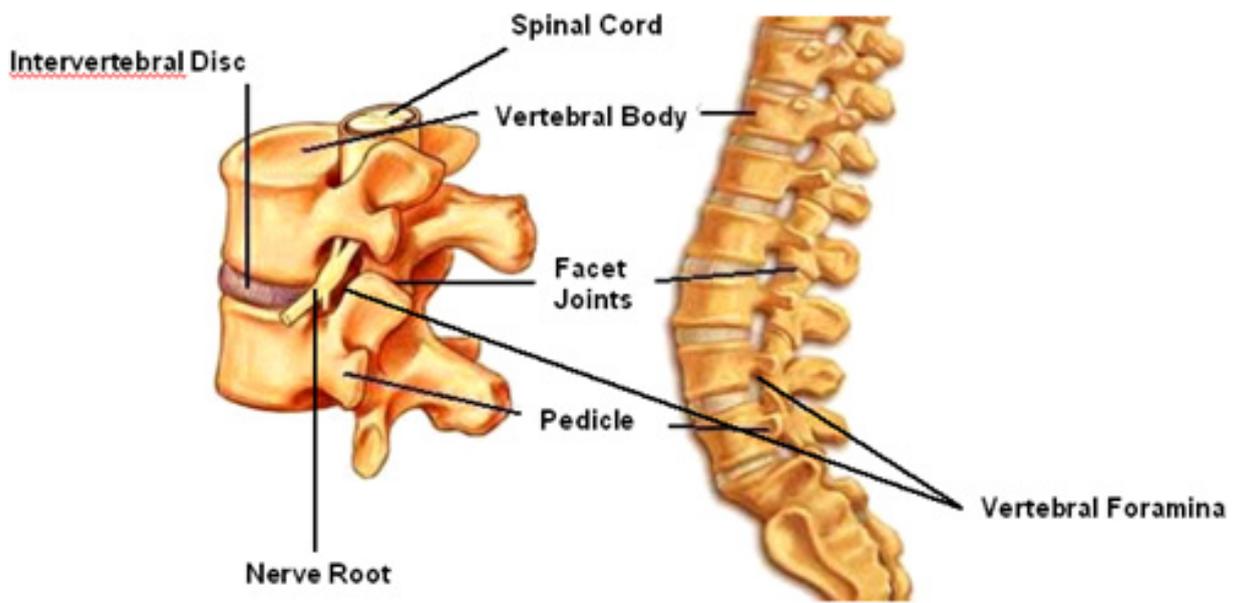
The back is a complex network of muscles, ligaments, bones, joints, cartilage and nerves that work together to provide support and mobility to the body. The support allows one to stand, walk and lift. Mobility allows movements such as turning, twisting and bending.

The body's backbone, or spine, is a column of cylindrical bones that encases and protects the spinal cord, which controls every movement and function of the body. Motor nerves leading out of the spinal cord control movement in the body, while sensory nerves entering the spinal cord communicate messages from the body back to the brain. These motor and sensory nerves form nerve roots that run through passageways, or foramina, between the bones of the spine. These nerve roots may become irritated when spinal structures pinch or press against the roots.

#### **Anatomy**

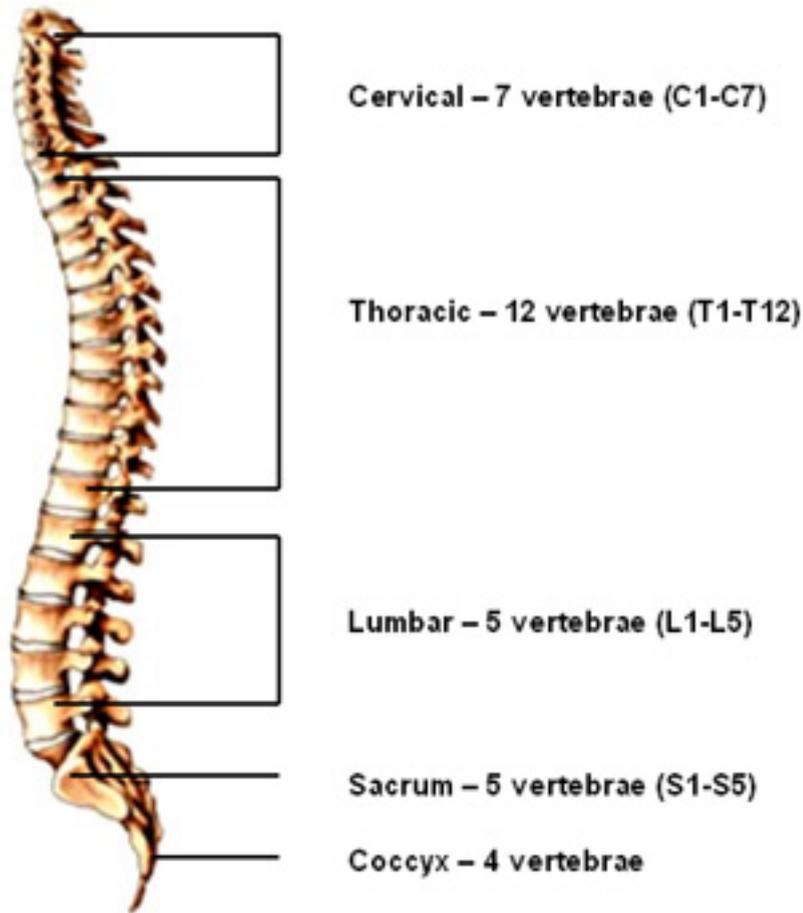
The spine is a flexible column made up of cylindrical bone segments called vertebrae. These vertebrae are linked and hinged together by facet joints that protrude from the back of each vertebra's body. Pedicles are the bony structures that connect the facet joints to the vertebral body. In between the vertebrae are intervertebral discs, which are gel-like cushions that increase spinal flexibility and absorb shock from everyday movements. Openings within each vertebra, called vertebral foramina, line up in succession to form the long hollow vertebral canal for the spinal cord. These openings also allow nerves from the spinal cord to branch out and exit the side of the spinal column.

When describing anatomy, medical professionals use terms that directly refer to the directional view of body parts. Two terms- anterior and posterior-are frequently used when surgeons discuss spinal surgery. Anterior refers to the front of the body or situated nearer the front of the body. Posterior refers to the back of the body or situated nearer the back of the body. Therefore, an anterior surgical approach enters through the front of the body.



A total of 24 vertebrae make up the three major regions of the spine:

- Cervical (neck)
- Thoracic (upper back)
- Lumbar (lower back)



The cervical spine supports the skull and allows for its rotation. The thoracic spine is firmly attached to the ribs and experiences little movement. The lumbar spine carries the most weight and experiences the most motion relative to other regions of the spine. These two factors make the lumbar spine the most frequent source of back pain.

Below the lumbar spine, nine vertebrae grow together. Five form the triangular bone called the sacrum, which is held between the iliac bones of the pelvis on either side and serves to transfer the weight of the upper body to the legs. The lowest four vertebrae form the tailbone or coccyx, which is the terminal point at the base of the spine.