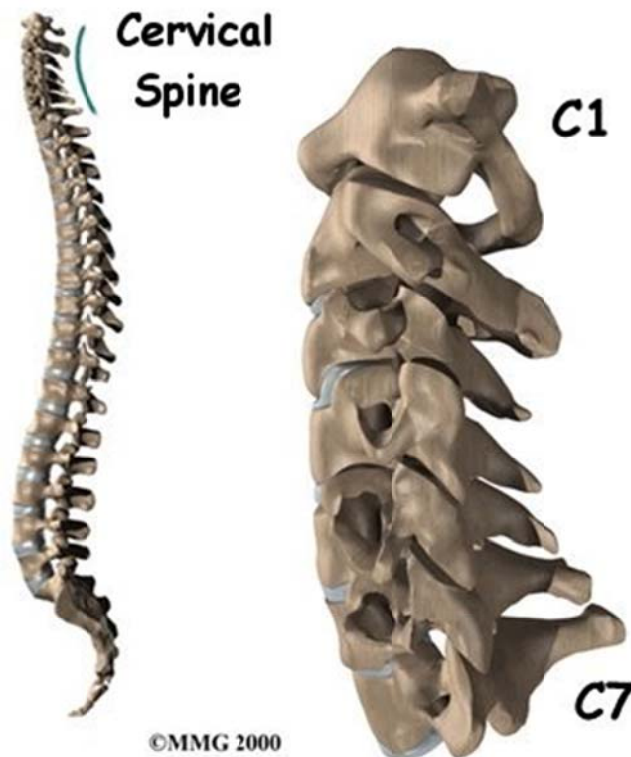


Introduction



Welcome to BodyZone Physiotherapy patient resource about Cervical Spine Problems.

Knowing the main parts of your neck and how these parts work is important as you learn to care for your neck properly.

Two common anatomic terms are useful as they relate to the neck. The term *anterior* refers to the front of the neck and the term *posterior* refers to the back of the neck. The part of the spine that moves through the neck is called the *cervical spine*. The front of the neck is therefore called the *anterior cervical* area. The back of the neck is called the *posterior cervical* area.

This guide gives a general overview of the anatomy of the neck. It should help you understand:

- what parts make up the neck
- how these parts work

Important Structures

The important parts of the cervical spine include:

- bones and joints
- nerves
- connective tissues
- muscles
- spinal segments

This section highlights important structures in each category.

Bones and Joints

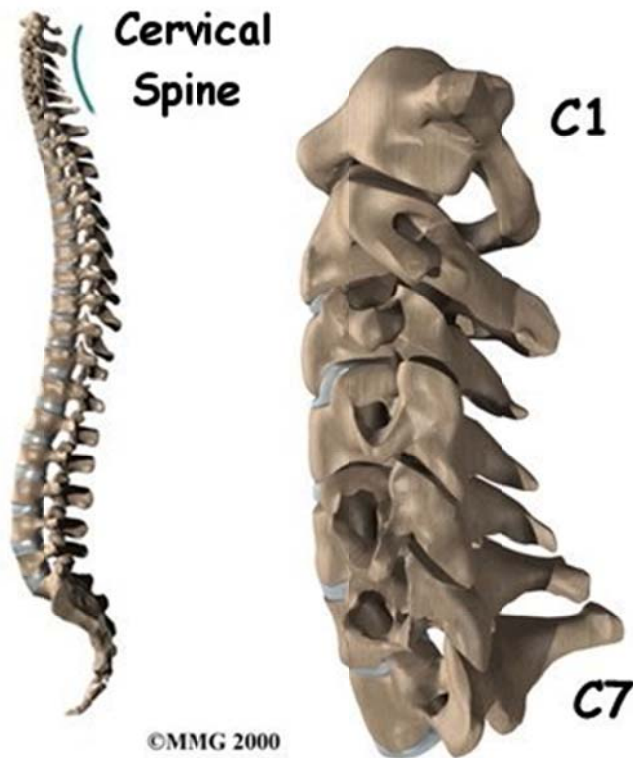
The human **spine** is made up of 24 spinal bones, called *vertebrae*. Vertebrae are stacked on top of one another to form the *spinal column*. The spinal column is the body's main upright support.

Spine



The first seven vertebrae make up the **cervical spine**. Doctors often refer to these vertebrae as C1 to C7. The cervical spine starts where the top vertebra (C1) connects to the bottom of the skull. The cervical spine curves slightly inward at the top, where C7 joins the top of the *thoracic spine* (the chest area).

Cervical Spine



The base of the skull sits on top of C1, also called the **atlas**. Two thickened bony arches form a large hole through of the atlas. The opening is large because the spinal cord is wider where it first exits the brain and skull. Compar vertebrae, the atlas also has much wider bony projections pointing out to each side.

Atlas



Atlas



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The atlas sits on top of the C2 vertebra. The C2 is called the **axis**. The axis has a large bony knob on top, called the dens. The dens points up and fits through a hole in the atlas. The joints of the axis give the neck most of its ability to turn left and right.

Axis

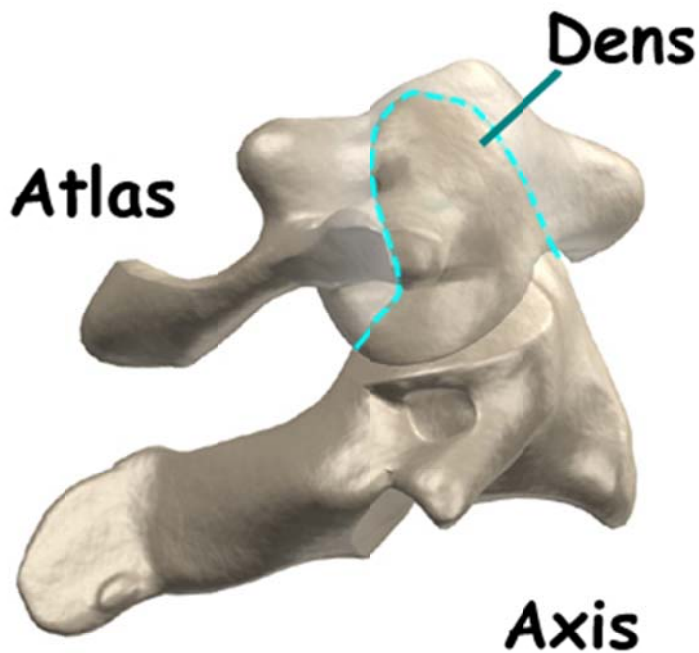


Axis



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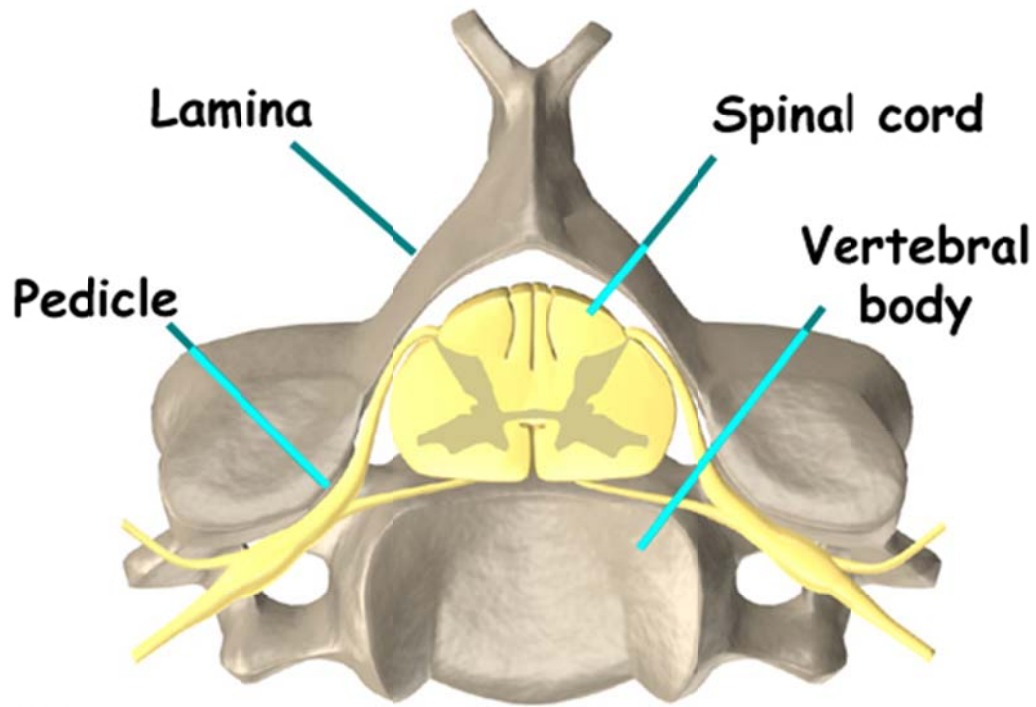
Dens



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Each vertebra is made of the same parts. The main section of each **cervical vertebra**, from C2 to C7, is formed by a block of bone, called the *vertebral body*. A bony ring attaches to the back of the vertebral body. This ring has two *pedicle bones* connect directly to the back of the vertebral body. Two *lamina bones* join the pedicles to complete the ring. The lamina bones form the outer rim of the bony ring. When the vertebrae are stacked on top of each other, the bony rings form a hollow tube that surrounds the spinal cord. The laminae provide a protective roof over the spinal cord.

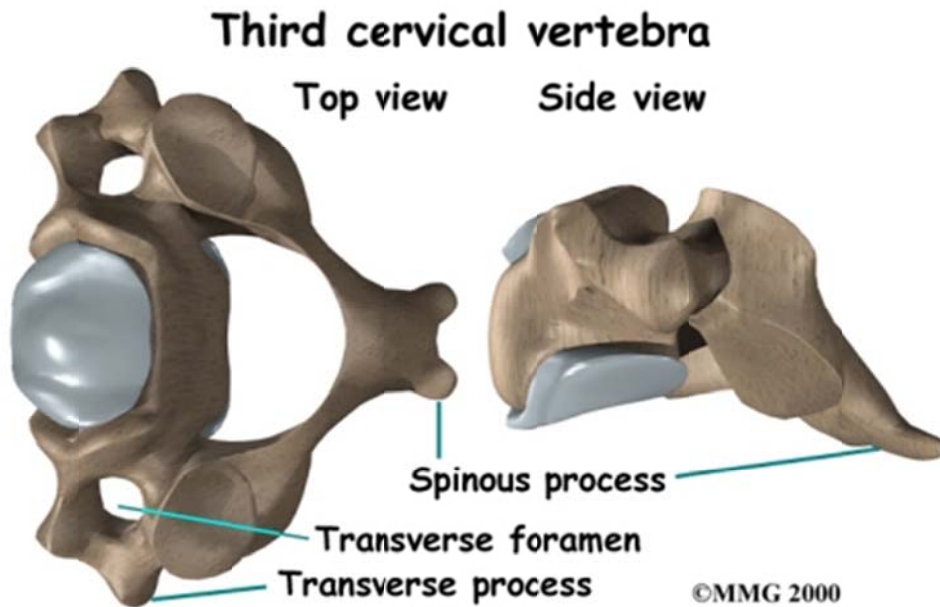
Cervical Vertebra



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A bony knob projects out at the point where the two lamina bones join together at the back of the spine. These are called **spinous processes**, can be felt as you rub your fingers up and down the back of your spine. The largest bony knob at the top of your spine is the spinous process of C2. At the base of the neck where the cervical and thoracic spines join, you'll feel another large spinous process. That's C7.

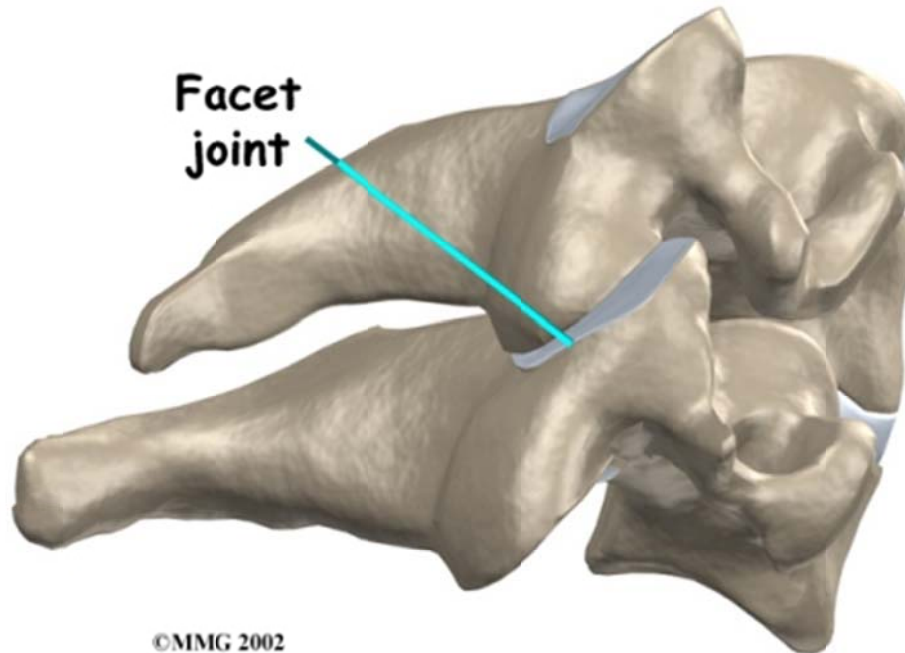
Spinous Processes



Each vertebra in the spine has two bony knobs that point out to the side, one on the left and one on the right. The projections are called *transverse processes*. The atlas has the widest transverse processes of all the cervical vertebrae; the rest of the spine, the neck vertebrae have a hole that passes down through each transverse process. This hole, *transverse foramen*, provides a passageway for arteries that run up each side of the neck to supply the back of the head with blood.

Between each pair of vertebrae are two joints called **facet joints**. These joints connect the vertebrae together in a way that allows them to slide against one another to allow the neck to move in many directions. Except for the very top and bottom of the spine, each vertebra has two facet joints on each side. The ones on top connect to the vertebra above; the ones on the bottom connect with the vertebra below.

Facet Joints



The surfaces of the facet joints are covered by *articular cartilage*. Articular cartilage is a smooth, rubbery material that covers the ends of most joints. It allows the ends of bones to move against each other smoothly, without friction.

On the left and right side of each vertebra is a small tunnel called a **neural foramen**. (*Foramina* is the plural term) Nerves that leave the spine at each vertebra go through the foramina, one on the left and one on the right. The intervertebral disc (described later) sits directly in front of the opening. A bulged or herniated disc can narrow the opening and exert pressure on the nerve. A facet joint sits in back of the foramen. Bone spurs that form on the facet joint can project into the tunnel, narrowing the hole and pinching the nerve.