

## Cervical Disc Herniation

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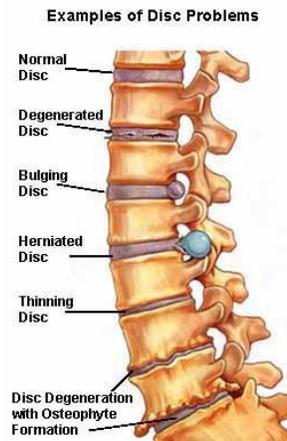
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### Anatomy

- The spine is made up of a series of connected bones called **vertebrae**. Between each pair of vertebrae there is a rubbery tissue called the **disc** that acts as a cushion, or shock absorber. The disc protects the vertebral bones, allows motion, and maintains the height between the vertebrae to leave room for the nerves to exit on either side.

### What is a disc herniation?

- A disc herniation occurs when the softer inner disc material ruptures, or herniates, through the outer disc wall, similar to the filling being squeezed out of a jelly donut, resulting in pressure on the spinal cord or exiting nerve roots. The terms “**disc herniation**”, “**ruptured disc**” or “**slipped disc**” all mean the same thing and may be used interchangeably.



### Cervical vs. lumbar disc herniation – an important distinction!

- Although the spinal column runs from the neck all the way down to the tailbone, the spinal *cord* begins in the neck but ends about 2/3 of the way down. The lower part of the spine houses nerve roots, but no spinal cord.
- What this means is that a **cervical disc herniation may affect the spinal cord in the neck** (Figure 1), whereas a **lumbar disc herniation almost never does** (Figure 2), since there is no spinal cord below the L1-2 level.



**Figure 1**  
Cervical disc herniation



**Figure 2**  
Lumbar disc herniation

## What symptoms are associated with a cervical disc herniation?

- It may be helpful to think of the cervical spine as having a “highway” as well as “exits” off the highway. Symptoms related to a herniated cervical disc will depend on whether the “highway” (**spinal cord**) or “exits” (**exiting nerve roots**) are being affected.
- There are 2 resultant syndromes that may occur as a result of a herniated cervical disc depending on whether the spinal cord (“highway”) or nerve roots (“exits”) are affected.

### 1. Cervical disc herniation with nerve root compression (“Exits” are narrowed).

Symptoms will vary from person to person but may include:

- Pain that radiates down the arm (**radiculopathy**)
- Numbness or tingling in the arm
- Arm weakness
- Neck pain or headaches
- Pain near the shoulder blade

### 2. Cervical disc herniation with spinal cord compression (“Highway” is narrowed).

This is termed **cervical myelopathy**. Left untreated, cervical myelopathy may result in **permanent injury** to the spinal cord and, thus, often requires a more aggressive treatment plan. Symptoms of spinal cord compression may include all of the above as well as:

- Awkward or stumbling gait
- Difficulty with fine motor skills in the hands
- Tingling or "shock" type feelings down the back or into the legs

## What causes a cervical disc herniation?

- Cervical disc herniation most often results from general, age-related “**wear and tear**” of the spine. Genetics, **smoking**, and a number of occupational activities also lead to accelerated disc degeneration as well.
- Occasionally, an injury, such as a fall or a motor vehicle accident, may result in acute injury to the disc. Subsequently, pain and other symptoms can develop when the damaged disc pushes into the spinal canal or nerve roots.

## How is a cervical disc herniation diagnosed?

- **The symptoms of a cervical herniated disc often resembles other disorders**, such as carpal tunnel syndrome or problems with the rotator cuff, so confirming the diagnosis is of paramount importance prior to formulating a treatment plan.
- The first step in diagnosis is always to take a complete history and administer a thorough physical examination. Most commonly, an **MRI** is ordered which readily identifies the presence and extent of any cervical disc problems. Additional studies, such as an **EMG/Nerve conduction study (NCS)**, may be considered if there is suspicion of a pinched nerve at the elbow, wrist, or elsewhere which may mimic the symptoms of a cervical disc herniation.

## What are the treatment options?

### 1. Nonsurgical Treatment

For isolated neck pain or problems at the level of the nerve root (radiculopathy) **80 - 90% will resolve without surgery**. Typical non-surgical modalities may include:

- Physical therapy
- Medrol dose pack - Steroids pills to reduce the swelling and inflammation
- NSAIDs (Non-steroidal anti-inflammatory drugs)
- Analgesics (pain medications)
- Steroid injections
- Cervical collar for a short period of immobilization

### 2. Surgical treatment

- When symptoms progress or do not resolve with conservative treatment, surgery may be recommended. Surgery is also typically recommended in cases of spinal cord compression with associated symptoms.
- Factors such as patient age, how long the problem has persisted, other medical problems, previous neck operations, and expected outcome are considered in planning surgery.
- Indications for surgical treatment may include:
  1. Evidence of spinal cord compression
  2. Persistent symptoms following a period of non-surgical management
  3. Severe pain and disability
  4. Progressive or persistent weakness or numbness
- In experienced hands, surgery for a cervical disc herniation is very reliable and has a high rate of success (**greater than 90% in resolving arm pain**).
- The most common approach for cervical disc surgery is **anterior** (from the front of the neck) and typically involves one of the following:
  - Anterior cervical discectomy and fusion (ACDF)
  - Cervical disc replacement
  - Cervical corpectomy