



# Medtronic

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## **Medtronic Media Contacts:**

[Bert Kelly](#), Public Relations,

## **Degenerative Disc Disease Fact Sheet**

## **INFUSE® Bone Graft - Fact Sheet Degenerative Disc Disease**

### **Basic Information**

- A common disorder of the lower spine is disc degeneration, also called degenerative disc disease (DDD) or osteoarthritis in the spine. Disc degeneration can lead to disorders such as:
  - o Lumbar spinal stenosis (narrowing of the canal that houses the spinal cord and nerve roots)
  - o Spondylolisthesis (disc slips forward)
  - o Retrospondylolisthesis (disc slips backwards)
- DDD is actually not a disease but rather a degenerative condition that at times can cause pain from a damaged disc.
- Degeneration in the discs is normal and is not in itself a problem. However, pain occurs when these discs or the growth of bone spurs pinch and put pressure on the nearby nerve roots or spinal cord.

### **Key Statistics**

- More than 65 million Americans suffer from lower back pain annually.<sup>1</sup>
- By the age of fifty, 85 percent of the population will show evidence of disc degeneration. The vast majority of these cases are asymptomatic.<sup>2</sup>

### **Causes**

- Aging is the most common cause of disc degeneration.
- As the body ages, the discs in the spine dehydrate or dry out, and lose their ability to act as shock absorbers between the vertebral bodies.
- The bones and ligaments that make up the spine also become less flexible and thicken.
- Unlike muscles, there is minimal blood supply to the discs, so they lack reparative powers.

## Symptoms

- Many times, people suffering from DDD do not show symptoms.
- When symptoms are present, chronic low back pain with or without radiation to the hips or aching pain in the buttocks and or the backs of the thighs may be seen with walking.
- Other symptoms include pain generally made worse with sitting, bending, lifting and twisting.

## Understanding Disc Pain

- It is not clear why some degenerated discs are painful and some are not, although if a disc is injured, it may become painful because of the resultant pinching or pressure on surrounding areas from the disc injury. This pressure can lead to an inflammatory reaction that results in low back pain.
- Some people have nerve endings that penetrate more deeply into the outer layer of the disc, or annulus fibrosus, than others, and this is thought to make the disc susceptible to becoming a pain generator.<sup>1</sup>
- Radiating leg pain is a result of the nerve root encountering the inner disc material, or nucleus pulposus, causing inflammation of the nerve root.<sup>1</sup>

## Quality of Life

- DDD can lead to a chronic, debilitating condition and can have a serious negative impact on a person's quality of life due to:
  - Severe leg pain
  - Difficulty standing and walking
  - Weakness or numbness in the legs
- When DDD is severe, traditional treatment options are often ineffective.

## Diagnosis

- Physicians evaluate low back pain by conducting a medical history, a physical exam and selected diagnostic tests.
- The physical exam includes an assessment of sensation, strength and reflexes in various parts of the body to help pinpoint which nerves or parts of the spinal cord are affected.
- A physician may order diagnostic studies. These tests may include:
  - X-rays: will show the bones of the spine and determine if there is significant wear and tear or disease of the bone. They will also reveal whether the bones are lined up properly.
  - Magnetic Resonance Imaging (MRI): uses a powerful magnetic field to produce a detailed anatomical picture of the spine and the structures within. It is probably the most useful means by which to reveal herniated discs since they are made of soft tissue that are invisible to x-rays.
  - Computed Tomography (CT): also known as a CAT scan, uses an x-ray and a

computer to generate images of the spine in slices. The CT shows the anatomy of the spine in great detail. It also clarifies the relationship of the disc or bone spurs to the spinal cord and nerves.

- o Myelogram: an x-ray picture taken with a special dye injected into the spinal sac to highlight the spinal cord and nerves. The dye is usually injected into the spine with a needle and then the x-rays are obtained. Myelograms have largely been replaced by CT and MRI scans.
- o Discography: a special x-ray test that may help identify which discs are damaged and if they are a source of pain. It uses a contrast dye injected into the disc space to view the disc more clearly.

## Treatment Options

- Many symptomatic cases of disc degeneration resolve with conservative management, such as bed rest, physical therapy, anti-inflammatory medication (ibuprofen), steroid treatment, etc.
- If these treatment options do not provide relief within two to three months, surgery may be recommended.<sup>1</sup>
- Signs that surgery may be needed include:
  - o Leg or back pain limits normal activity
  - o Weakness or numbness in legs
  - o Difficulty walking or standing
  - o Medication and physical therapy are ineffective

## Quantifying Results

- The most common method of measuring the severity of DDD and determining the most appropriate treatment is the Oswestry Disability Questionnaire. The Oswestry Questionnaire is also used post-treatment, to determine the level of success.
- The Oswestry Low Back Pain Disability Questionnaire is completed by the patient to measure activities of daily living most likely to be impaired in those suffering from lower back pain. It can be called an "outcome" measure because it attempts to assess change in variables that are not related directly to any intervention or diagnostic finding by a practitioner. It relies on self-report of these activities by the patient himself or herself.<sup>3</sup>
- A successful spinal fusion surgery is determined by several criteria, including an improvement in the Oswestry score and radiographic evidence (CT Scan and X-Ray) of bone growth (fusion).

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1 American Association of Neurological Surgeons (AANS)/Congress of Neurological Surgeons (CNS)

2 Chicago Institute of Neurosurgery and Neuroresearch web site, 06/21/01

3 The Chiropractor's Association of Australia, 1997



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