



## **My Drift**

**Title: Lower Back Pain**

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Check out the “Back Pain Statistics” on the next page. Here are five stats that stand out:

1. 8 out of 10 Americans will experience back pain in their lifetime.
2. Back pain impacts about 30% of Americans at any given time.
3. Only 1 in 10 people find out the primary cause of their back pain.
4. Primary treatments (Prescription Drugs, Chiropractic Treatments, and Physical Therapy) help a little more than 50% of patients.
5. Most people with back pain sit at a desk when working.

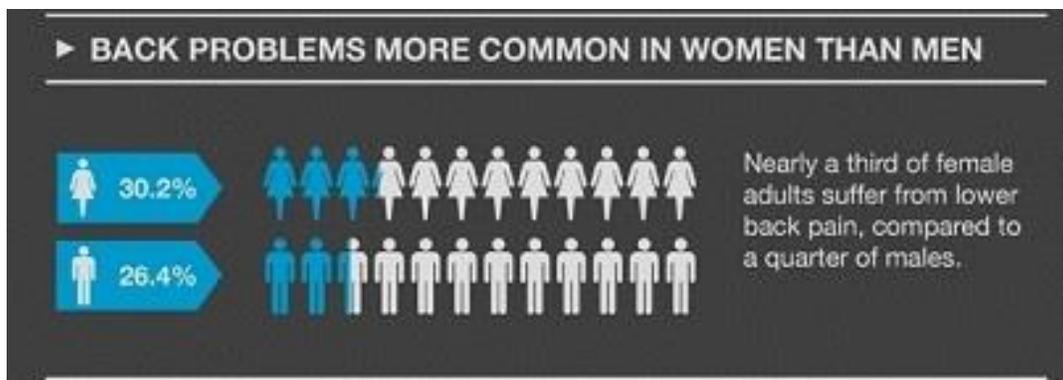
I’m one of the 80% with back pain and will tell you more about my problem later in the article.



## Back Pain Facts and Statistics

- About 50 million Americans experience low-back pain at any given time.
- Low back pain is the single leading cause of disability worldwide.
- Back pain is one of the most common reasons for missed work.
- Back pain is the second most common reason for visits to the doctor's office, outnumbered only by upper-respiratory infections.
- Over one-half of all working Americans admit to having back pain.
- Experts estimate that as much as 80% of the population will experience a back problem at some time in their lives.
- Most cases of back pain are non-organic meaning they are not caused by serious conditions, such as inflammatory arthritis, infection, fracture or cancer.
- Americans spend at least \$50 billion each year on back pain—and that's just for the more easily identified costs.

54% of Americans Who Experience Low Back Pain Spend the Majority of Their Workday Sitting



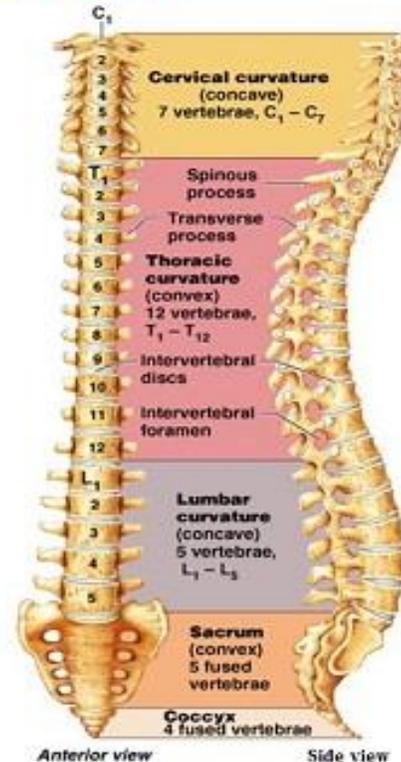
- Only 1 in 10 people with back problems find out the primary cause of their pain.
- Chronic low back pain (CLBP) is a common and debilitating problem in adults aged 65 and older. Thirty-six percent of older adults experience one or more episodes of back pain each year.

## Back and Spine Structure

# Vertebral Column

### The Human Spine Structure

- Formed from **26** irregular bones (vertebrae) connected in such a way that a flexible curved structure results
  - **Cervical** vertebrae – **7** bones of the neck
  - **Thoracic** vertebrae – **12** bones of the torso
  - **Lumbar** vertebrae – **5** bones of the lower back
  - **Sacrum** – bone inferior to the lumbar vertebrae that articulates with the hip bones



The central feature of the human back is the vertebral column, specifically the length from the top of the thoracic vertebrae to the bottom of the lumbar vertebrae, which houses the spinal cord in its spinal canal.

The back can move in many different directions but it can stiffen as well. When looked at from the back (anterior view), the spine appears to be straight, but looked at from the side you can see 2 curves which cause the back to have an “S” shape—it curves forward at the neck (cervical spine) and lower back (lumbar spine) and slightly backwards at the thoracic spine and sacral region. These curves help support the head and provides strength, flexibility and provides super shock absorbing abilities. However, many problems with the back are associated with the normal curvature of the back.

Between each vertebra is a cushion called an intervertebral disc. On the anterior side of each vertebra is an oval shaped disc called the vertebral body. On the posterior side of each vertebra is the vertebral foramen, which is an opening through which the spinal cord passes. A crucial job of the back is to protect and support the vital spinal cord and spinal nerves.

## Spinal Segment

A spinal segment forms a functional unit and is made up of two adjacent vertebrae, the intervertebral disc between them, the two spinal nerves that exit from each side of the spinal cord, ligaments and muscles.

## The Sacrum

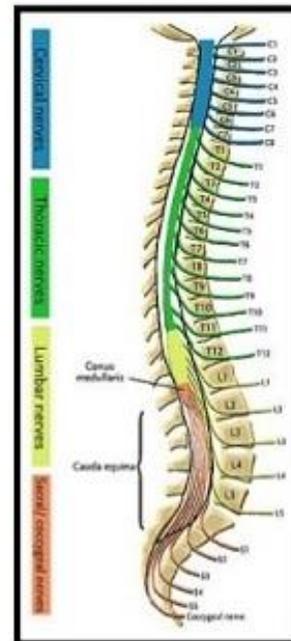
The sacrum is the last segment of the spine. At birth, it is made of several vertebrae. But, by the time you're an adult, these vertebrae have fused together to form the sacrum. The Sacrum is a large, triangular bone, in the lower part of the vertebral column and at the upper and back part of the pelvic cavity, where it is inserted like a wedge between the two hip bones; its upper part or base joins with the 5th lumbar vertebra by intervertebral fibrocartilage and at the bottom it joins with the coccyx or tailbone.

## Spinal Nerves

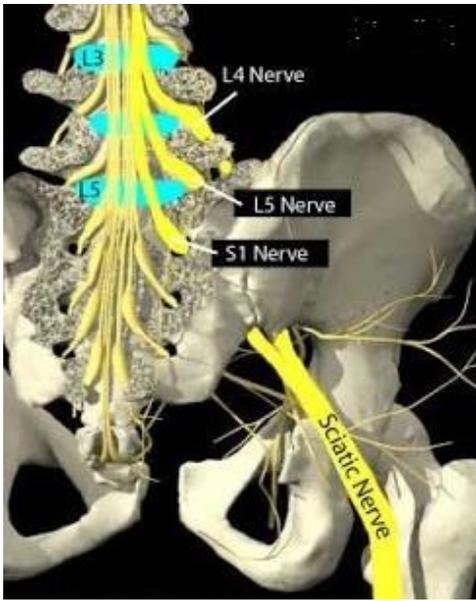
### Spinal Nerve

#### Spinal nerves:

1. 8 pairs of cervical spinal nerves
2. 12 pairs of thoracic spinal nerves
3. 5 pairs of lumbar spinal nerves.
4. 5 pairs of sacral spinal nerves
5. 1 pairs of coccyx spinal nerves.



The spinal cord comes off the base of the brain, runs throughout the cervical and thoracic spine, and ends at the lower part of the thoracic spine. The spinal cord does not run through the lumbar spine (lower back). After the spinal cord stops in the lower thoracic spine, the nerve roots from the lumbar and sacral levels come off the bottom of the cord like a "horse's tail" and exit the spine.



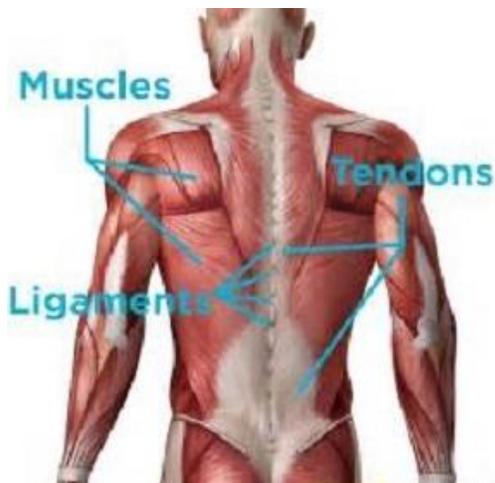
Therefore, because the lumbar spine has no spinal cord and comprises a large amount of space for the nerve roots, this is where nerve problems are most likely to occur. Pinched or irritated nerves are a common source of pain in the lower back.

The **sciatic nerve** is a large nerve that begins in the lower back and runs through the buttock and down each leg. It is the longest and widest single nerve in the human body, going from the top of the leg to the foot. The sciatic nerve provides the connection to the nervous system for nearly the whole of the skin of the leg, the muscles of the back of the thigh, and those of the leg and foot.

### Back Muscles, Ligaments and Tendons

The three types of back muscles that help the spine function are extensors, flexors and obliques:

- The extensor muscles are attached to the posterior (back) of the spine and enable standing and lifting objects. These muscles include the large paired muscles in the lower back (erector spinae), which help hold up the spine, and gluteal muscles.
- The flexor muscles are attached to the anterior (front) of the spine (which includes the abdominal muscles) and enable flexing, bending forward, lifting, and arching the lower back.
- The oblique muscles are attached to the sides of the spine and help rotate the spine and maintain proper posture.



Ligaments connect bone to bone and Tendons attach muscle to bone. Ligaments and tendons are fibrous connective tissues made up of densely packed collagen fibers. Following an injury, ligaments and tendons may take a long time to heal because their blood supply is limited. In the spine, ligaments help to provide structural stability by holding the vertebrae together.

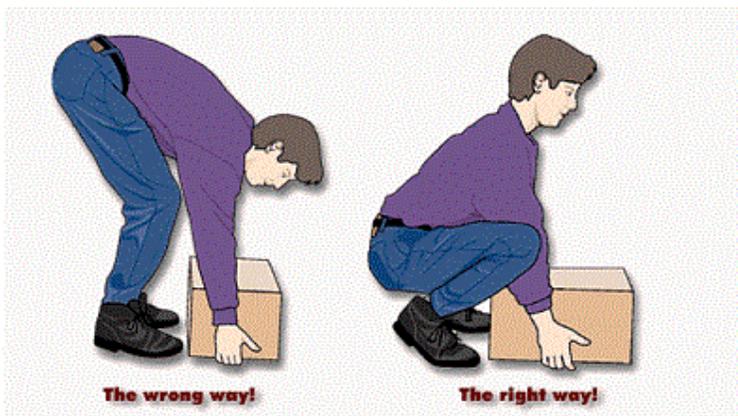
## **What Causes Back Pain?**

The back is a complicated structure of bones, joints, ligaments, tendons, muscles and nerves. You can sprain ligaments, strain muscles, rupture discs, irritate joints and pinch nerves, all of which can lead to back pain. While sports injuries or accidents can cause back pain, sometimes the simplest of movements—for example, picking up a pencil from the floor— can have painful results. In addition, arthritis, poor posture, obesity, and psychological stress can cause or complicate back pain. Back pain can also directly result from disease of the internal organs, such as kidney stones, kidney infections, blood clots, bone loss, or cancer.

Millions of Americans have ongoing back pain. It's the leading cause of disability and many things can cause it. Let's look at the most common causes of lower back pain.



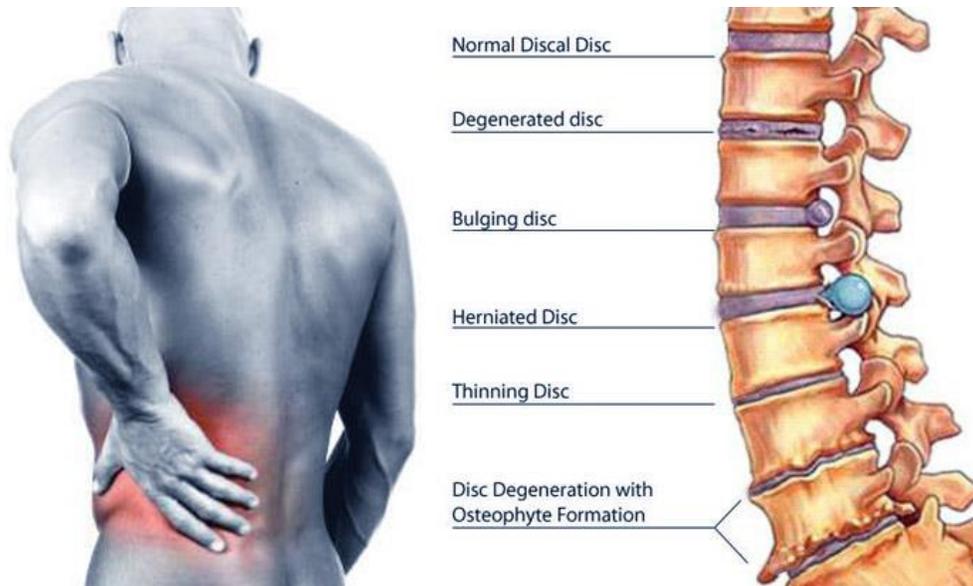
Playing golf can be hazardous to your health. Just ask Tiger Woods. Tiger's violent golf swing over many years is believed to be the cause of his knee and back problems. His back problems have pretty much put a halt to his golf career. He has had multiple surgeries on his back for herniated discs and pinched nerves. These operations have had only limited success.



A back muscle strain or ligament strain is the most common cause of acute lower back pain. Lifting a heavy object, twisting, or a sudden movement can cause muscles or ligaments to stretch or develop microscopic tears.

## Spine-Related Problems

Back pain often happens because something is off in the way your spinal joints, muscles, discs, and nerves fit together and move.



**Herniated or slipped discs:** When this happens, the soft tissue in the discs between your joints has come out. It's usually caused by wear and tear. Herniated discs can cause pain in your lower back or hip because the nerves there are pressed.

**Bulging discs:** These protrude, or “bulge,” but not as much as with a herniated disc. You don't usually have symptoms with this. You'll feel it if it pushes on a nerve root, though.

**Degenerative discs:** The discs, or “shock absorbers” between your spine's vertebrae, shrink or tear. That causes the bones to rub together. This may happen as you get older.

**Inflammation and wear of the sacroiliac joint:** This lies where your spine and pelvis come together. It doesn't move much, but it's important because it moves the load of the upper body to the lower body. Swelling and wearing away of the joint cartilage can happen after an injury, because of arthritis, infection, or even pregnancy.

**Spinal stenosis:** This condition happens when your spinal canal has narrowed. That adds pressure on your spine and nerves. As a result, your legs and shoulders probably feel numb. This happens to many people older than 60.

**Cervical radiculopathy:** This is the “fancy name” for a pinched nerve. It’s usually caused by a bone spur or a herniated disc.

**Spondylolisthesis:** A bone in the spine slips forward and out of place, typically in the lower back. The degenerative form of this condition is arthritis, which weakens the joints and ligaments keeping the spine aligned. It can cause a disc to move forward over a vertebra.

### **Accidents and Injuries**



Car accidents, falls, muscle sprains, strains, and fractures are also causes of back pain. Injuries can lead to some of the physical problems, but some can cause pain all on their own.

**Spine or vertebral fractures:** A break to your spine can be caused by a hit to the back, a fall, or if you have osteoporosis, a condition that weakens your bones.

**Sprains and strains:** Injuries to ligaments, muscles, and tendons that support the spine and its joints can lead to back pain. This often happens when you lift something and twist at the same time. It can also happen because of car accidents and sports injuries.

**Spasms:** You can get these when muscles and tendons are torn in your lower back. They usually happen when you’re weightlifting or playing sports.

### **Lifestyle Triggers**

Back pain can be brought on by things you do -- or don't do -- in your day-to-day life, like:

**Slouching**  
**Lifting heavy objects**  
**Being overweight**



**Not exercising**  
**Smoking**  
**Emotions**

**Don't underestimate the power of feelings to bring on pain. Stress can lead to muscle tension in the back, and depression and anxiety may make the pain feel even worse.**

### **Medical Conditions**

**Arthritis: This is a joint disease that causes stiffness, swelling, and inflammation.**

**Osteoarthritis: This degenerative joint disease happens when your cartilage and bones break down. This most often affects people from middle age onward.**

**Ankylosing spondylitis: This is a type of arthritis that affects your joints and ligaments along the spine.**

**Scoliosis, or curvature of the spine: This is usually something you have from birth. If there's pain, it typically starts in mid-life.**

**Pregnancy: The weight you gain when you're expecting can strain your back.**

**Tumors (Cancer): In rare cases, you can get tumors in your back. They're usually spread by a cancer that started somewhere else in your body.**

### **Back Pain Diagnosis and Tests**

**You know your back hurts, but you probably don't know why, or what to do about it. Here are how doctors diagnose back problems and what tests may be involved.**

**Before a doctor can begin treating back pain, he or she may do tests to diagnose what is causing your problem. Unless you are totally immobilized from a back injury, your doctor probably will test your range of motion and nerve function and press on your back to locate the area of discomfort.**

**Blood and urine tests may be done to be sure the pain is not caused by an infection or other systemic problem. X-rays are useful in pinpointing broken bones or other skeletal defects. To analyze soft-tissue damage such as disc herniation, magnetic resonance imaging (MRI) scans may be needed. X-rays and imaging studies are not usually indicated for first-time back pain caused by an overuse type injury and are generally used only for checking out ongoing pain or direct trauma to the back, back pain with fever, or nerve problems such as weakness or numbness in the arms or legs. To determine possible nerve or muscle damage, an electromyogram (EMG) can be useful.**



**Digital X-Ray Machine**



Unfortunately, there is not always a direct correlation between the findings on imaging studies and the amount of back pain. Many people have had an X-Ray, MRI and CT scan that show no visible problems, yet they have severe back pain. What now?

### **Lower Back Pain Treatment**

Treatment for lower back pain depends upon the patient's history and the type and severity of pain. The vast majority of lower back pain cases get better within six weeks without surgery, and lower back pain exercises are almost always part of the treatment.



Low back pain is very common. It can be acute, lasting less than one month, or chronic, lasting beyond three months

**Exercise for Lower Back Pain.** Exercise is a key element of almost any lower back pain treatment plan. Typically, an exercise program will be developed and taught by a spine health professional, such as a physical therapist, chiropractor, or physiatrist, and will include three components: aerobic conditioning, stretching, and strengthening.

### **Your doctor may also recommend the following:**

**Rest.** Ceasing activity for a few days allows injured tissue and even nerve roots to begin to heal, which in turn will help relieve lower back pain. However, more than a few days of rest can lead to a weakening of the muscles, and weak muscles have to struggle to adequately support the spine. Patients who do not regularly exercise to build strength and flexibility are more likely to experience recurrent or prolonged lower back pain.

**Heat and/or Ice Packs.** Heat and/or cold therapy helps relieve most types of low back pain by reducing inflammation. Often patients use ice, but some prefer heat. Both may be used alternately.

**Medications.** A wide variety of over-the-counter and prescription medications is available to help reduce lower back pain. Many medications reduce inflammation, which is often a cause of pain, while others work to inhibit the transmission of pain signals from reaching the brain. Each medication has multiple unique risks, possible side effects and drug (or food or supplement) interactions, which need to be evaluated by a physician.

**Chiropractic Adjustments.** These adjustments can help improve spinal function by decreasing pain and inflammation to increase range of motion and physical function.

**Epidural Steroid Injections.** These injections deliver steroids directly into the painful area of the lower back to reduce inflammation. The steroids do not heal the components of the back, but often provide enough pain relief to allow patients to move, exercise and heal.



**Surgery.** Lower Back Pain Surgery is almost always the patient's decision and is usually the last resort. A qualified spine surgeon will be able to explain the pros and cons of each procedure. Back surgery can significantly reduce pain symptoms by relieving the pressure on compressed nerve roots. Fusion surgery, which is used to stop the motion at a motion segment, is a more extensive surgery but can be effective at relieving pain.

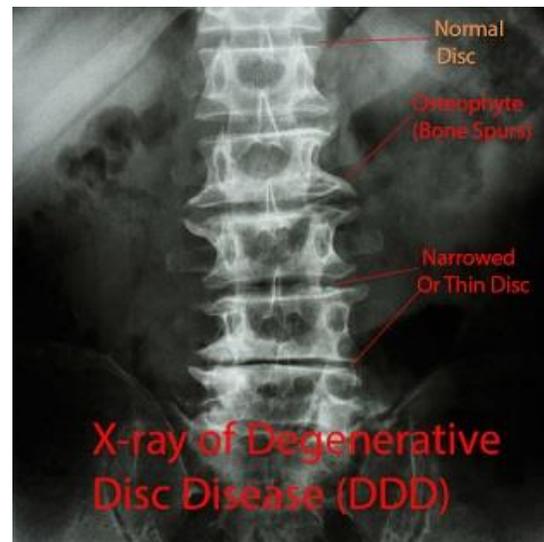
Hopefully one of these treatments will work to reduce or stop your lower back pain.

## **My Lower Back Problem**

Okay, I know you have all been waiting “on pins and needles” to hear about my back problem.

A couple of years ago I started having lower back pain shortly after going to bed at night. If I turned the wrong way or tried to get up right away, the pain could be severe. After a half hour or so my back seemed to stabilize and the pain would go away. I can get a good night’s sleep without too much pain. My back is a little stiff when I get up in the morning but once I’m up moving around there is no pain and I can function normally. I can lift things like heavy pots or help my 135 pound Rottweiler in and out of my truck, play golf or shoot a basketball, or even run with my dogs on their walk/trot around the block.

Finally, after about six months of this pain, I decided it was not going to go away and I better tell my primary care doctor about it. He said that my symptoms were very strange since most people experience back pain while they are lifting things or playing sports, etc. My back pain occurs when I’m lying down doing nothing! So anyway, my doctor scheduled a back x-ray for that same day. The x-ray showed the doctors (and me) that I have two moderately degenerative discs in my lower back.



It is called Degenerative Disc Disease (DDD) but it is not a disease. My doctor said that this condition occurs frequently with his senior patients and it is usually caused by normal wear and tear on the lower spine over the years. He also said that I was lucky they were able to pinpoint my problem and could rule out more serious conditions like infection or cancer.

Since I didn’t experience any serious back problems over my first 75 years, I feel lucky. Just look at Larry Bird, Bill Walton, and Tiger Woods – they all had much more serious back problems in their thirties. I played basketball from about age 10 to age 70 and never had any leg or back problems. I did, however, have a broken arm, a broken toe, and three broken noses during my basketball playing years.

Now you know the real reason for writing this article. Starting in the next paragraph, I'm going to try to learn more about these degenerative discs.

### **What is degenerative disc disease?**

Degenerative disc disease is not really a disease but a term used to describe the normal changes in your spinal discs as you age. Spinal discs are soft, compressible discs that separate the interlocking bones (vertebrae) that make up the spine. The discs act as shock absorbers for the spine, allowing it to flex, bend, and twist. Degenerative disc disease can take place throughout the spine, but it most often occurs in the discs in the lower back (lumbar region).

The changes in the discs can result in back or neck pain and/or:

- Osteoarthritis, the breakdown of the tissue (cartilage) that protects and cushions joints.
- Herniated disc, an abnormal bulge or breaking open of a spinal disc.
- Spinal stenosis, the narrowing of the spinal canal, the open space in the spine that holds the spinal cord.

These conditions may put pressure on the spinal cord and nerves, leading to pain and possibly affecting nerve function.

### **What causes degenerative disc disease?**

As we age, our spinal discs break down, or degenerate, which may result in degenerative disc disease in some people. These age-related changes include:

- The loss of fluid in your discs. This reduces the ability of the discs to act as shock absorbers and makes them less flexible. Loss of fluid also makes the disc thinner and narrows the distance between the vertebrae.
- Tiny tears or cracks in the outer layer (annulus or capsule) of the disc. The jellylike material inside the disc (nucleus) may be forced out through the tears or cracks in the capsule, which causes the disc to bulge, break open (rupture), or break into fragments.

These changes are more likely to occur in people who smoke cigarettes and those who do heavy physical work (such as repeated heavy lifting). People who are obese are also more likely to have symptoms of degenerative disc disease.

A sudden (acute) injury leading to a herniated disc (such as a fall) may also begin the degeneration process.

As the space between the vertebrae gets smaller, there is less padding between them, and the spine becomes less stable. The body reacts to this by constructing bony growths called bone spurs (osteophytes). Bone spurs can put pressure on the spinal nerve roots or spinal cord, resulting in pain and affecting nerve function.

*I was thinking that maybe my one and only major fall triggered my back problems. For those of you that didn't hear about my "Great Fall from Glory", here are the grizzly details:*

*This sad event happened on Super Bowl Sunday back in 2011. Every morning that I don't work, I go to the Island Stop convenience store to get the morning newspaper.*



*On this Sunday morning, it was pouring rain. There is about a 10 inch step up to the sidewalk next to the building from where I parked my truck. I had my flip flops on and when I ran and jumped up on the sidewalk, my feet went out from under me and when I tried to correct the fall so that I would not hit my head, I ended up landing on the ledge with my right foot.*

*That flipped me onto the front fender of my own truck sending me flying into the parking lot where I landed on my back. I lay there a few moments getting wet thinking I was okay until I looked down and saw my foot - it was pointing in the wrong direction and was already swelling up. Then I felt the pain. I had a little trouble getting up because my knee was bleeding and my shoulder hurt. I finally was able to get up and into my truck. I drove using my left foot and headed directly for the ER at Wahiawa General Hospital. It didn't take them long to determine that my foot was broken. My other injuries were minor.*

*I was planning on going to a Super Bowl party later in the day. DARN!!!!!! I'm getting old - I must be more careful.*

*This was a couple of months after I retired from federal service and was working as a contractor at Fort Shafter on the second floor of building 520. When I went back to work, I was on crutches and had to hop up and down the stairs (22 steps) on my left leg. After a few days, my left knee started to hurt and I had to learn a new way of getting up and down the stairs. This was when I learned the "sit on your rear" method of going up and down the stairs. It worked great and I got pretty good at it. A little dirt on the back side of my pants didn't bother me.*

*I didn't think about it at the time but falling on my back and shoulder (and maybe even the hopping around) could have caused some back issues that are just showing up in my later life. Who knows?*

### **What are the symptoms?**

Degenerative disc disease may result in lower back or neck pain, but this varies from person to person. Many people have no pain, while others with the same amount of disc damage have severe pain that limits their activities. Where the pain occurs depends on the location of the affected disc. An affected disc in the neck area may result in neck or arm pain, while an affected disc in the lower back may result in pain in the back, buttock, or leg. The pain often gets worse with movements such as bending over, reaching up, or twisting.

The pain may start after a major injury (such as from a car accident), a minor injury (such as a fall from a low height), or a normal motion (such as bending over to pick something up). It may also start gradually for no known reason and get worse over time.

In some cases, you may have numbness or tingling in your leg or arm.

*In my case, it is pain in my lower back after lying down and then trying to get up or make a sudden turn.*

### **How is degenerative disc disease diagnosed?**

Degenerative disc disease is initially diagnosed with a medical history and physical exam. Your doctor will ask about your symptoms, injuries or illnesses, any previous treatment, and habits and activities that may be causing pain in the neck, arms, back, buttock, or leg. During the physical exam, he or she will:

- Check the affected area's range of motion and for pain caused by movement.
- Look for areas of tenderness and any nerve-related changes, such as numbness, tingling, or weakness in the affected area, or changes in reflexes.
- Check for other conditions, such as fractures, tumors, and infection.

If your exam reveals no signs of a serious condition, imaging tests, such as an X-ray or MRI are unlikely to help the diagnosis. However, imaging tests may be considered when your symptoms develop after an injury, nerve damage is suspected, or your medical history suggests chronic conditions that could affect your spine, such as bone disease, tumors, or infection.

*In my case, my doctor had me get back x-rays. These helped diagnose the exact problem causing my lower back pain.*

### **How is degenerative disc disease treated?**

To relieve pain, put ice or heat (whichever feels better) on the affected area and use acetaminophen (such as Tylenol) or nonsteroidal anti-inflammatory drugs, such as ibuprofen or naproxen. Your doctor can prescribe stronger medicines if needed.

With most degenerative disc patients, doctors will also prescribe physical therapy and exercises for strengthening and stretching the back. In some cases, surgery may be recommended. Surgery usually involves removing the damaged disc. In some cases, the bone is then permanently joined (fused) to protect the spinal cord. In rare cases, an artificial disc may be used to replace the disc that is removed.

*In my case, my doctor prescribed physical therapy. Since my insurance would pay for up to 10 sessions of physical therapy, that's what I had. I went to a physical therapy place in Aiea twice a week for 5 weeks. These were 30 minute sessions and the exercises they had me doing were quite intense and some were hard to do. However, they did help my back feel better and I learned a couple of the better stretching exercises that I could do at home in the morning before going to work.*



*Okay, I don't do all of these exercises but I do some stretches like reaching for the ceiling and touching my toes. It helps!*

My doctor didn't prescribe this but in addition to the Physical Therapy, I went to a well-known chiropractor in Honolulu. Getting my spine aligned properly seemed to help with the pain I was having.

### **Conclusions**

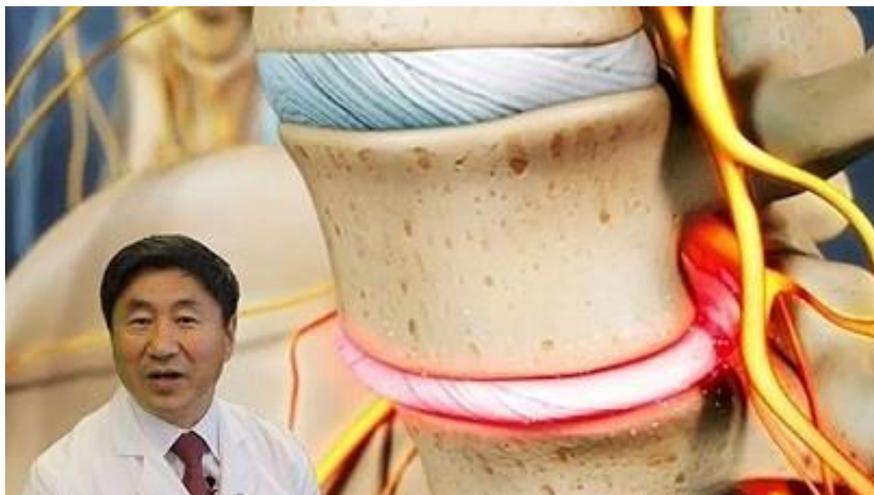
When you first hear that you have Degenerative Disc Disease, some alarming questions pop into your mind like:

- How much worse will the pain become as I get older?
- Will I have to restrict my activities? Can I still play sports and walk the dogs?
- Will the disease spread to other parts of the spine?
- Will the degenerated discs cause any permanent damage to my spine?
- Will the disease become a crippling condition? Will I end up in a wheelchair?
- Is surgery inevitable?

### **In general, here is what have I learned about Degenerative Disc Disease?**

That Degenerative Disc Disease is one of the most common causes of lower back pain and is also one of the most misunderstood. It sounds like a progressive, threatening disease but it is not really a disease and it is not strictly degenerative.

While it is true that the disc degeneration is likely to progress over time, the pain from degenerative disc disease usually does not get worse and in fact usually gets better given enough time.



Dr. Shim explains the three Stages of Degenerative Disc Disease described as the "degenerative cascade":

1. First, there is significant dysfunction caused by the acute back pain of the injury.

- 2. Next, there is a long phase of relative instability at that particular vertebral segment and the patient will be prone to intermittent bouts of back pain.**
- 3. Finally, the body re-stabilizes the segment and the patient experiences fewer episodes of back pain.**

**Based on the observation that demographic studies show less back pain from degenerative disc disease in elderly adults (over 60 years) than in younger adults (30 to 50 years old).**

**I feel much better now about my back problem since I have learned how to avoid most of the pain. I'm pretty sure that I can live with my degenerative discs and maintain the quality of life that I desire at my advanced age.**

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