BACK TALK

Answers to common questions that patients have about their back pain

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INTRODUCTION

Helping patients recover from back pain is a privilege I have every day here at Carolina Neurosurgery & Spine Associates. During my many years of clinical practice, I have discovered that patients dealing with lower back pain describe their concerns in a wide variety of ways. I’ve also come to understand that the fear of the unknown can be almost as worrisome as the pain itself for most patients.

As spine specialists, we understand that back pain can be debilitating and frightening. When your back hurts, it can be very hard to do anything productive. Severe back pain can rob an individual of their freedom and create a feeling of hopelessness. When a patient is in that frightened state, we strive to help them understand exactly what is causing the pain and explain the available treatment options.

In the following pages, you will find the most common questions that patients ask us on a daily basis regarding back pain, and the treatment of its associated symptoms.

It is our hope that this booklet can address many of your questions about your spine and the most common causes of back pain. This text was written in a question and answer format that mirrors the daily discussions we have in the office with our patients suffering from back pain. I have tried to simplify the terms and describe things in a way that will be easy to understand. At the end of this booklet, you will find a list of products and resources that may be useful in addressing your back issues. These are things that I have used personally and often recommend.

This text is not meant to be overly scientific and may not represent the opinions of every spine specialist. I have taken care not to address back pain that results from medical conditions, as that topic may involve an entirely different discussion. In addition, this booklet is not a substitute for the care of a qualified physician.

We hope this information will be very helpful to you and help to get you “Back on Track!”

Sanjiv Lakhia, DO and the physicians of Carolina NeuroSurgery & Spine Associates

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SECTION 1: BACKGROUND

Question
Does everyone hurt their back at some point in their lives?

Answer
Almost everyone will experience back pain. According to the National Institute of Health (NIH), almost 80% of adults experience an episode of low back pain at some point in their life. Back injuries are the number one cause of missed workdays and disability in the United States and account for billions of dollars annually in lost workplace productivity. It’s very likely that someone you know right now has also gone through an episode of back pain in the last three months.

Question
What causes so much back pain and injury?

Answer
Several factors play a role. People ages 30 to 55 have a higher risk of back pain and injury. As we age, the muscles in our spine and legs become less flexible making us more susceptible to injury. The cushions between our spinal vertebrae (intervertebral discs) lose their elasticity (stretchiness) and dehydrate. This makes them more vulnerable to small tears and fissures and ultimately prone to herniation (inner jelly leaks out).

Many physical factors can contribute to the problem, including excessive weight, muscular weakness and lack of flexibility.

Genetics can play a role. Degenerative disc disease (wearing out of discs) can run in the family. So if you have relatives with this problem, you could face it yourself.

SECTION 2: BAD TO THE BONE

Question
Can you explain the parts of the spine?

Answer
The bones of the spine are called vertebrae. Most everyone has seven cervical (neck), twelve thoracic (mid back) and five lumbar (low back) vertebrae. A small percentage of the population has an extra vertebrae in their low back but this isn’t a bad thing as it rarely has any implications for pain or injury.

Workplace stresses such as prolonged sitting, repetitive bending and lifting, as well as twisting maneuvers, can injure the low back. In this modern society, sitting eight hours a day at a computer plays a big role in causing back pain for many of the patients we see at our practice.

Cervical spine
Thoracic spine
Lumbar spine
Sacrum
Coccyx

Question
Are our spines straight?

Answer
No, not really. If you look at your spine from the side, you will notice that each area of the spine has certain curvatures. The lower back and neck have dips (lordosis), while the upper back rounds a bit (kyphosis). The purpose of these curves is to help us maintain an upright posture.

When we walk, we are fighting two main forces. First, gravity provides a force directed down. The gravitational force centers most strongly just in front of the L5 vertebral body, which is why the L5/S1 disc is often the first disc to wear down for most of us. This force is countered by a force from the ground, called the ground reaction force. It’s basically the force generated from below with each step. Muscular weakness and spinal ligament thickening can lead to changes in our natural curvatures, which can contribute to pain and injury.

Question
Do weak bones contribute to back pain and injury?

Answer
Yes and no. Certainly, strong bones are important to help prevent osteoporosis and back fractures. Bone density (how thick the bones are) does not have direct impact on back pain, except that vertebral body fractures can be painful and contribute to loss of typical curvatures over time.
**Question**
How do I keep my bones strong?

**Answer**
A healthy lifestyle with routine exercise and good nutrition is the most important approach to maintaining healthy, strong bones. Calcium and Vitamin D are the mainstays, but there are multiple nutrients responsible for adequate bone mineralization including Vitamin K, manganese, boron, selenium and magnesium. While these nutrients can be taken in supplement form, a diet with strong focus on greens, legumes and fruits is the best way to get them into your body.

**SECTION 3: GETTING ON YOUR NERVES**

**Question**
My doctor said I have Sciatica. Is that the same thing as a pinched nerve?

**Answer**
Sciatica is a general term that describes pain involving the sciatic nerve, which is made up of multiple lumbosacral nerve roots. These nerves exit the spine in your low back and come together near the buttock to form the sciatic nerve. Typically, any radiating, nerve-like pain (burning, numbness, tingling) can be referred to as sciatica. This pain, which usually travels down the back or side of your leg, is very common.

The sciatic nerve can also become irritated at points lower than your spine. For example, prolonged sitting can compress the sciatic nerve in your buttocks and cause pain. Sitting on a thick wallet can cause irritation. Tightness in your piriformis muscle in the buttck can also cause the discomfort as well.

**Illustration of the sciatic nerve**

Additionally, weight-bearing exercise is essential to maintaining strong bones. These activities may include walking and resistance training with bands or free weights. It is important to note that while they are terrific cardio exercises, biking and swimming do not build bone strength due to their low impact nature.

**Question**
Sometimes I can have pain down the front of my leg or even down the back of the leg. Are these different nerves?

**Answer**
There are six commonly irritated or inflamed nerves that come out of the lumbosacral spine. The most commonly affected nerve roots are the L4, L5 and S1 nerves. Your body has a set of nerves for each leg. The L4 nerve can cause pain in the back, buttock, and hip area, that may radiate down the front of the thigh, below the knee into the inner (medial) aspect of the lower leg to the inner ankle. Inflammation of the L5 nerve root can cause pain radiating from the back and buttock, down the side of the leg to the front of the foot and into the big toe. Pain coming from the S1 nerve roots can cause low back pain and buttock discomfort that travels down the back of the leg, hamstring region, calf, heel and bottom of the foot and can affect the last two toes in each foot. The nerve roots L1, L2 and L3 are affected less commonly and can contribute to pain above the knee into the groin region as well.

**Question**
I have lived with sciatic pain for years and my doctor says I may have nerve damage. Can nerves regenerate or grow back or is my nerve damage permanent?

**Answer**
That all depends. A lot of people confuse pain with nerve damage. True nerve damage results in weakness in a limb, hand or foot. There are also different types of nerves coming from the spine that can be injured. Our bodies have small nerves that convey sensation and larger diameter nerves that control strength. Other types of nerves send signals to the brain, such as position sense and temperature.

In general, damaged nerves do not heal very well. Unlike bones, which can heal within six weeks, damaged nerves can take over a year to fully regenerate. Many times nerves never completely heal. The rule of thumb is that most nerves heal at the rate of about one inch per month. However, this number can vary widely.

A physical examination at Carolina Neurosurgery & Spine Associates is the best way to assess actual nerve damage. Often, patients with chronic pain display good strength and sensation during their exam. A nerve function test, called an EMG (electromyography), provides real-time data regarding nerve function and helps us detect damage.

**EMG (electromyography)**
Question
Is there a sciatic nerve in my arm? Sometimes I get similar symptoms in my arm.

Answer
While there is not an exact sciatic nerve, the nerve anatomy of the arm is similar in concept to the back. There are five main nerves that exit the cervical spine and travel down the arm. The C4 and C5 nerves provide strength and sensation to the shoulder and biceps region, with some radiation into the forearm. The C6 and C7 nerves control part of the biceps, triceps and function down to the wrist. The C8 and T1 nerves supply the hand muscles and some of the forearm muscles that control your ability to bend your wrist.

Another way to the think about it is numbness into your thumb is from the C6 nerve, numbness in the middle finger is the C7 nerve, and numbness in your pinky is the C8 nerve. These nerves can be injured in the neck or outside the spine in the area called the brachial plexus, which is below your collarbone.

SECTION 4: COMPACT DISCS

Question
I heard I have discs in my spine. What are they for?

Answer
Discs are the shock absorbers of the spine and are located in between the bones of our spine (called vertebrae). They are basically the cushions between the bones. Discs are made up of a soft inner core called the nucleus pulposus, and a tougher outer circumferential ring of ligament-like structures called the annulus fibrosis. Every time we take a step, forces are transmitted through the inner disc and outward towards the annulus. The intervertebral discs are flexible to an extent and made up of mostly water-like substances which provide its elasticity and flexibility.

Question
I was told I have a bulging disc. Is this worse than a herniation? What’s the difference between the two?

Answer
Bulging discs, herniations and protrusions are variations of the same thing. Discs have a soft inner core. At times, the outer rim (annulus) can become weak or suffer a tear (annular tear), and the inner gel (nucleus) can leak out. This is called a herniation or, to a lesser degree, a protrusion. Other times, the disc can just kind of flatten out where the outer annulus stays intact. This is called a bulge.

Another way to look at it is to use the example of a jelly doughnut. Discs are certainly firmer than doughnuts, but the analogy works. If you take a jelly doughnut between your hands and gently apply pressure the doughnut will flatten but the jelly stays inside. This would be similar to a disc bulge. Now, if you took that same doughnut and pressed it harder, jelly would actually come out of the doughnut. This would be similar to a disc herniation.

There is really no correlation between the size of a disc herniation or bulge and pain. Most people over the age of 35 will develop some degree of disc bulging in their spine. This is a natural process of aging that occurs as our discs dehydrate (dessication). In general, herniated discs lead to more pain than bulging discs due to some degree of tearing of the outer annulus. The annulus is full of small nerve fibers, which can result in significant pain when injured.

Surprisingly, larger herniations, where a significant amount of the inner nucleus leaks out, can provide severe pain for some patients, and minimal discomfort, if any, for others. This is one reason why good spine surgeons do not operate on every disc abnormality identified on MRI studies.
Question
My MRI showed several bulging discs but my doctor said there is “nothing” wrong with me. Is he just blowing me off? Why do I have pain?

Answer
Bulging discs can represent a natural aging process. Unless they are contacting spinal nerves, they are not typically a source of pain. Often, people fail to understand that the most common source of back pain is what we call “mechanical” back pain. Muscle weakness, weight gain, lack of exercise and poor flexibility contribute to far more cases of lower back pain in our society each year than spinal disc issues. It is well established that too much emphasis can be placed on MRI findings without first addressing the factors that contribute to mechanical back pain.

Question
Will losing weight really help my back pain?

Answer
While excessive weight may not be the entire cause of your pain, losing it can always be a part of the solution. There are several reasons why excessive weight, particular belly fat, contributes to low back pain. First, and most obvious, is the added strain on your lumbar discs, ligaments, joints and muscles. Each pound over your ideal body weight adds two pounds of pressure on your lumbar discs. This added pressure over time can contribute to degeneration, bulging and ultimately herniation of the discs. Added belly fat can lead to increased strain on the front of your body, causing excessive lean back, or sway back. This added curvature also leads to more compression of our lumbar discs and spinal joints than is needed.

Lastly, obesity creates an inflammatory state in your body. Added inflammation can make you more sensitive to pain and make recovery from injury more difficult. Losing even a small amount of weight can have a tremendously positive effect on your back pain and overall health.¹

Question
Do discs heal easily when injured? What are the factors that contribute to my discs wearing out besides weight gain?

Answer
Spinal discs have poor blood supply. Most of the nutrition that discs receive is from diffusion of the surrounding fluids into the disc space. Therefore, tears, cracks, or fissures in the discs can take many months or even years to heal. Spinal discs are also easy to reinjure.

Besides your weight, genetics also play a big role in lumbar and cervical disc disease. You may be more prone to having back problems based on your family history. Smoking further impairs circulation to our discs and also significantly delays healing time. This is why most spine surgeons will not operate on the spine without a patient ceasing their smoking habit prior to surgery.

One other emerging risk factor for degenerative disc disease is excessive sitting. Turns out, the long-term compression of our discs from sitting all day staring at computers has a detrimental effect and can also contribute to developing bulges, herniations and wear and tear.

Surgeons from around the world come to Carolina NeuroSurgery & Spine Associates to receive surgical training from our neurosurgeons in minimally invasive and complex spine procedures.
SECTION 5: CORE BELIEFS

Question
What is all this talk about “core” muscles? What do they have to do with my spine?

Answer
The core muscles surround the spine and provide stability and support to your low back. The core is made up of muscles in the front, back, top and bottom of the spine. If you visualize your low back inside of a box, each side of the box is a group of important muscles. In the front of the body you have the rectus abdominis muscles that run the top to the bottom. These contract when you are bending. Wrapping around the spine like a back brace is a group of muscles called the transverse abdominus and the oblique muscles. These are very important when you are lifting any objects in front of your body, In the back of the body, you have posterior strap muscles, or the erector spinae muscles. You also have deeper spinal muscles call the multifidi. These are responsible for bending as well as rotational movements.

At the floor of the core are the pelvic muscles and gluteal muscles. The gluteal muscles are extremely important for your low back. Having strong gluteal or buttock muscles provides stability to the lumbosacral junction and can affect how you walk. Weak gluteal muscles contribute to hip and back pain. Many of these muscles are weakened by prolonged sitting, which occurs throughout society due to excessive computer use.

In summary, research has suggested that maintaining a strong group of core muscles can reduce low back injuries and improve an individual’s overall level of function and performance. This is why physical therapists and athletic trainers focus many exercises at building core strength.

Question
What is the best way to build core strength? I have heard a lot about physical therapy, Pilates and yoga. Are these good activities to help with my low back pain?

Answer
All of these activities may provide reduction in lower back pain and improved functional abilities. Physical therapy is a more targeted approach to address a specific problem. During physical therapy, an overall evaluation will identify movement, flexibility and strength deficits. Different exercises are then used to help correct these issues and promote greater muscle balance throughout the body.

Pilates is a physical fitness system developed in the 20th century by Joseph Pilates with strong focus on the relationship between breathing and controlled movement patterns to promote stability and flexibility in the body. Pilates can typically be performed either through a class or at home using videos or other media.

Yoga is a very popular form of exercise that has a strong focus on breath, flexibility and relieving tension. Many yoga poses will help improve core muscle strength, however the primary physical benefits stem from increased overall flexibility and stress reduction.

Question
I do lots of sit-ups for my back. Is this the best exercise?

Answer
Not anymore. While the sit-up has been a staple for decades in the exercise community, newer research is starting to reveal that it may not be the best or safest exercise for low back pain. Sit-ups really only strengthen one part of the core, the rectus abdominus muscles and may cause disc damage.

A 2015 Wall Street Journal article entitled “Why you can stop doing sit-ups,” points out that the sit-up has been removed from the Canadian Armed Forces fitness tests due to its lack of connection to actual military work and the potential for injuries. Stuart McGill, a professor of spine biomechanics at Canada’s University of Waterloo, points out that sit-ups can put hundreds of pounds of compressive force on the spine. These forces, when combined with the repeated flexion (bending) motion, can literally squeeze the front of the discs causing discs to bulge or herniate posteriorly (backwards), pressing on nerves, causing back and leg pain.

At Carolina Neurosurgery & Spine Associates, we have seen thousands of patients who suffer from flexion-sensitive discs. Simple acts like bending over to tie shoes or rinse after brushing teeth can exacerbate lower back pain and sciatica. These patients should absolutely avoid traditional sit-ups. The good news is that there are many alternatives to sit-ups that can help a patient develop excellent abdominal and core strength, without excess lumbar bending maneuvers.

A popular exercise is the plank pose. This pose resembles the upper portion of a push-up, with the body held straight like a plank, taking care to keep the hips from dropping. Forearms can remain on the ground and the pose can be held for as little as a few seconds to several minutes, depending on an individual’s fitness level. The plank pose engages multiple muscle groups including the transverse abdominus, gluteal muscles and posterior strap muscles of the spine. This makes it an excellent overall core activity. We encourage patients to meet with our physical therapy team to review other, safe core strengthening exercises.

The medical literature has sparse research supporting the use of yoga or Pilates for reducing low back pain. In contrast, clinical trials have shown a positive effect of physical therapy. Each of these activities can have tremendous benefits for one’s health and combining these can often lead to the best overall outcome.

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Footnotes:

1. The reference numbers are placeholders and will need to be replaced with actual citations.

2. The reference numbers are placeholders and will need to be replaced with actual citations.

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SECTION 6: BACKED INTO A CORNER
(COMMON TYPES OF BACK INJURIES)

Question
My doctor said I may have torn a back muscle this weekend. Is that really possible?

Answer
While tearing a back muscle in the literal sense is possible, it is more likely that you suffered a lumbar strain, which involves overly stretching and injuring the muscles in your back. This type of injury can be very painful, but typically heals within 2-6 weeks. Recommendations for recovery may initially include ice, followed by moist heat, anti-inflammatory medication and activities as tolerated. Physical therapy can often be helpful to stimulate recovery and rehabilitate any weakened muscles that developed as a result of the injury.

A true muscle tear would involve complete separation of muscle fibers and result in a fairly significant hematoma (blood clot) within the muscle. This would be very unusual in spinal muscles due to their fiber orientation and the typical forces that are distributed amongst the individual spinal levels.

Question
I have pain and numbness going down the back of my leg after being in the car for an extended period of time. My doctor said I have sciatica. What does this mean?

Answer
Sciatica is a general term describing irritation to the large sciatic nerve that travels through the buttock and into the lower leg. It can manifest as any variation of numbness, tingling and weakness and can certainly be painful. There are numerous potential causes of sciatica. The most common cause is simple muscle irritation. Tight back muscles or even buttock muscles can irritate the sciatic nerve as it exits the spine. This can be fairly easily corrected through proper alignment and muscle balance.

A muscle that can be frequently irritated and cause sciatica is the piriformis muscle. Piriformis syndrome involves shortening of this muscle (which is located in the buttock) and irritation of the nearby sciatic nerve. Typically, the sciatic nerve runs beneath the muscle. In about ten percent of the population, the nerve actually splits right through the muscle. Excessive sitting, over stretching (yoga), and generalized pelvic weakness can contribute to this condition. As piriformis syndrome can be challenging to treat at times, focused therapy and injections can be successful treatment options.

Beyond muscle imbalances, disc injuries can also cause sciatic nerve irritation. The sciatic nerve is made up of many nerve root branches that originate from the spine. Bulging discs, herniations and extrusions can all compress these different nerve roots and contribute to radiating pain going down the leg. Most disc problems can be managed with medication, physical therapy and possibly epidural steroid injections. In cases where signs of nerve damage develop, it is important to see a qualified and experienced neurosurgeon for treatment.

Question
The bones in my spine don’t seem to line up on the X-ray. Is my spine broken?

Answer
Probably not. This is likely a condition called lumbar spondylolisthesis. The most common cause of lumbar spondylolisthesis is age-related arthritis in the spinal joints. Arthritis can lead to loosening of the joints and slippage of the adjoining vertebra above or below the affected area.

About 20% of the population has some degree of bone slippage in their back. This issue can contribute to lower back pain. If the slippage is significant enough, it can result in pinching of the spinal nerve roots as they exit the spinal canal. The good news is that most patients can find relief through exercise as directed by a knowledgeable physical therapist.

For other patients, the condition is the result of trauma, preceded by a lumbar spondylolysis. The “lysis” part of the name means there is a break in the bone. In this case, it involves a specific part of the vertebral body called the pars interarticularis. Athletes that participate in high impact, extension based (leaning back) sports such as gymnastics or volleyball are more prone to these fractures. While athletes with this type of acute injury can miss up to a year of playing time, the treatment is typically non-surgical and managed well with bracing, medication and therapy interventions.
SECTION 7: MR WHY?

Question
My back has been really hurting. What is the best test to take a look at it? X-ray, MRI, or CT?

Answer
Most back injuries don’t require any form of radiologic testing. That’s because the majority of back injuries are mechanical or muscular in nature. Medical treatment guidelines do not recommend any form of imaging (X-ray, MRI or CT) with these injuries until after at least six weeks of conservative treatment, which may include physical therapy, chiropractic care, and non-steroidal anti-inflammatory medication, such as Aleve, Diclofenac, Celebrex or Meloxicam. Data suggests the risks of imaging (mainly radiation) outweigh the potential benefits early on in the injury timeline.

In cases where a patient has weakness in the leg or foot, lumbar MRI (Magnetic Resonance Imaging) is ideal. MRI uses a high-powered magnet and is the best imaging option to look for disc herniations and nerve compression. MRI does not radiate our bodies and is a very safe form of imaging. MRI studies can not be performed on people with implantable devices, such as pacemakers.

CT scans (Computed Tomography) are another option to view the spine. This test is frequently performed in the Emergency Room because it can be done rapidly, is relatively inexpensive and can provide more information than simple X-rays. CT scans are excellent for looking at bone, soft tissue and blood vessels. These scans can provide an initial evaluation of the spinal canal and offer imaging clues about possible nerve root compression. The downside of CT scans is the radiation exposure. One lumbar CT scan typically provides 6 mSv (millisieverts) of radiation. This is the equivalent to the radiation exposure that we have in a two-year period through our daily living.

If the back pain is accompanied by weakness or associated with the “red flags” of fever, lack of bowel or bladder control, or trauma then imaging may be needed from the start. X-rays are often performed as a first imaging choice to look for fractures (broken bones), alignment issues, scoliosis (abnormal curvature), and arthritis. They can even provide initial evidence of some types of bone cancer, which is very rare.

Question
What is the difference between MRI scanners where I lie down or sit up? Also, is there a big difference in quality between open scanners and closed scanners?

Answer
Traditionally, MRI scans of the lumbar spine are performed while patients lie on their backs (supine). This is typically the preferred position for patient comfort and allows for the best chance for a patient to remain still for the scan. At Carolina NeuroSurgery & Spine Associates, MRI scans can also performed when a patient is sitting upright. The upright scan shows the patient’s back in a position where the pain occurs since most disc injuries feel worse with sitting. Theoretically, disc bulge can be detected more easily in a sitting position. Upright MRI scans can also show the patient’s back while in both a bent forward (flexed) and backwards (extended) position. This imaging can be an excellent way to document dynamic changes in the spinal canal and investigate for spinal instability (bone slippage with movement).

Question
I am very claustrophobic and feel like I am in a coffin when laying in an MRI. Is this common?

Answer
Many patients have anxiety about having an MRI. Fortunately, low dose sedation in the form of oral Valium or low doses of intravenous Versed can be provided to help an anxious patient get through the MRI process.

SECTION 8: BACK ON THE MOVE

Question
I threw my back out a few days ago and have severe low back pain but no symptoms in my legs. Should I be on bed rest?

Answer
No. Decades ago, the standard treatment was to put patients in the hospital on bed rest with traction. Research has since proven that this was the wrong approach to care. Even in the midst of acute back pain, it is often best to maintain activities as tolerated when it comes to lower back injuries. When there is an acute injury, light activities such as walking and simply performing daily tasks may be all one can tolerate. But this approach is now recommended over strict bed rest, which leads to muscle weakness and atrophy (shortening of muscles fibers) that can lengthen the pain cycle and prolong recovery.
Question
It’s been a few weeks and my back is starting to feel better. The pain is still about a 4 on a scale of 1 to 10. Can I get back to training for that marathon in a few months?

Answer
Not so fast. During this phase of injury recovery, you still need to use a bit of caution. While reduced pain is certainly an encouraging development, smart exercise is still prudent, and only low impact cardiovascular activities should be considered. Examples of this type of exercise include walking and biking. (Although some patients may not prefer biking due to the sitting component and compressive nature of this form of exercise.) The elliptical machine is also great, because it is low in impact, it strengthens the gluteal muscles and quadriceps and this machine provides great cardiovascular exercise. Progressing to light cardiovascular exercise 2-3 times per week would be very appropriate in this setting.

Question
Doc, it’s been a great month! I am walking or using the elliptical machine 3-4 times per week with very little pain. I want to start running but I am concerned about how it will affect my spine and discs in general. What can you tell me?

Answer
The information is mixed regarding running and spine injuries. Several studies suggest that if you run less than twenty miles per week, the risk of injuring your back is low. However, the answer is actually more complex. Most back pain that occurs during running is the result of multiple factors. Pelvic misalignment, foot imbalances, core muscle weakness and poor running technique can all contribute to the development of low back pain while running. Based on the patients we see at Carolina NeuroSurgery & Spine Associates, many runners lack a well-rounded exercise program. In particular, I have seen many cases of tight hamstrings, calf muscles and poor core strength in runners. A knowledgeable physical therapist or athletic trainer can be the best way to prevent back injuries and promote a long, healthy running career. However, for patients suffering from disc-related injuries, all bets are off and a very cautious return to running would be prudent.

Question
What are the best drugs to treat my back pain?

Answer
There is not a one-size-fits-all approach to medication for treatment of back pain. Non-steroidal anti-inflammatories (NSAIDS) like Aleve and Ibuprofen are the most commonly prescribed drugs. Many physicians prescribe oral steroids in short doses to also reduce inflammation. Medical literature is largely scant on supportive evidence of what medication is best. Most medical societies advocate a step-wise approach with Acetaminophen or Naprosyn/Ibuprofen products as first line agents to manage the back pain. For more severe pain, muscle relaxers like Flexeril can be prescribed and, as a last resort, a short course of opioid (narcotic) pain medication can be used.1

Question
I eat Ibuprofen like they are Skittles. I know it’s probably not good, is there any real risk from this?

Answer
Yes. The short-term immediate risk involves development of a stomach ulcer. Ibuprofen (and similar NSAID products) inhibits the prostaglandins (hormone type molecules) in your system that are responsible for protecting the lining of your stomach. This can result in stomach pain, reflux and ultimately ulcerations in the lining of your stomach. In severe cases, over usage of Ibuprofen can actually lead to internal bleeding and hospitalization. Prolonged NSAID usage can also put stress on your kidneys, liver and heart. Make sure you check with doctor for specific risks to your health.

Physiatrists offer a holistic approach to patient care and help patients avoid surgery and minimize the use of medications when possible.
Question
Do muscle relaxers really help with back pain?

Answer
Typically, not much. One thing to consider is that most muscle relaxers have very little direct effect on your back muscles. While the exact mechanisms of some muscle relaxers are largely unknown, it appears that their impact involves the activation of certain neurotransmitters (chemical messengers) in the brain and nervous system, which can create an indirect relaxation effect in the body.

The typical side effects of muscle relaxers can include drowsiness, dry mouth, and constipation. While some patients respond well to them, for the large majority of people, the side effects of muscle relaxers outweigh the potential benefits. In fact, for patients over the age of 65, muscle relaxers are specifically not recommended due to the increased risk of causing these patients to fall.

Question
What about Neurontin? Is it addictive? I hear bad things about this drug in the news.

Answer
Neurontin (Gabapentin) is commonly used for off-label treatment of nerve related pain syndromes. Specifically, it can be helpful in some cases of sciatica. This medication came on the market in 1993 for the treatment of partial seizures. It was quickly observed that for some patients, a reduction in neuropathic (nerve related) pain occurred. Typically, Gabapentin takes time to work. Most physicians prescribe a low dose and slowly increase the dose over time to reach a point of therapeutic effectiveness. Therefore, it can take several weeks for pain relief to be obtained.

The main side effects of this drug can include drowsiness and some dizziness. In some patients, depression-type symptoms can develop, so it should be watched closely. Gabapentin is not an addictive drug. However, patients who use the drug beyond a few weeks can develop physical dependence. This means it should not be stopped abruptly, but rather weaned slowly over a few weeks.

Gabapentin is thought to work by binding to certain receptors in the brain and nervous system although the exact mechanism is unclear. Overall, it is a relatively well-tolerated drug with little toxicity to the kidneys or liver. Just watch out for sedation and use caution with driving while using this drug.

Question
Ok, I understand, but how bad does the injection hurt? Is there any chance it could leave me paralyzed?

Answer
Epidural steroid injections (ESIs) are fairly well tolerated by most patients. The procedure is typically performed with the assistance of fluoroscopy, which is basically a live X-ray. A big camera, shaped like a “C” and affectionately called the C-arm, is used to help the physician see the bones of the spine and locate the appropriate entry point. An injection of Lidocaine is typically used to numb the skin. Most people do say this injection is uncomfortable because the lidocaine can produce a burning sensation, similar to a bee sting, for several seconds. After a couple of deep breaths the stinging will typically subside. Then, once the injection needle reaches the correct location, a small amount of contrast dye is injected and the X-ray monitor is observed to make sure the needle is not in a blood vessel.

Finally, a mixture of lidocaine or saline plus steroid is then injected around the nearby nerve root and into the epidural space. The actual injection of solution can produce a pressure sensation in the back, hip or down the leg. Patients describe this pressure as mild, but at times it can be more intense and uncomfortable. Fortunately, the discomfort is quite brief and well worth the pain relief that can follow.

While paralysis is a listed as a potential complication of the procedure, it is an extremely rare occurrence when appropriate procedural guidelines are followed.

SECTION 10: HIT ME WITH YOUR BEST SHOT!

Question
You want to stick what in my back? How is an epidural injection going to help my blown disc? Aren’t epidurals for pregnant women?

Answer
Lumbar epidural steroid injections (ESIs) are frequently performed for the treatment and management of back and leg pain related to disc herniations and pinched nerves. If medications and physical therapy are not effective, epidural steroid injections may be recommended to alleviate back pain. These types of injections are especially helpful for reducing radiating pain down the leg due to a herniated disc or joint arthritis irritating a spinal nerve root.

ESIs are different from those given to pregnant women. While both procedures target the epidural space (space around the thecal sac), pregnant patients get a numbing medicine, while steroids are used to treat spine-related pain. Lumbar ESIs can potentially help reduce inflammatory chemicals that are being released from your blown disc and thus help with pain relief and healing.
Question
I had my injection on Friday. It’s Monday and my pain is still pretty bad. Was this shot useless?

Answer
When it comes to pain relief following an epidural steroid injection, patience is a virtue! Most injections take 7 to 14 days for the steroid effect to kick in and provide pain relief.

Question
You did my injection with me lying down and I felt it go down my leg. My last doc had me sitting up and leaning forward. What’s the difference?

Answer
There are two different technical approaches to performing lumbar epidural steroid injections. The technique in which a patient lies down is called a transforaminal approach. This involves injecting around the nerve root as it exits the spinal canal. It’s basically an oblique or angled approach targeting the neuroforamen (bony area where the nerve sits). The main risk with this approach is inadvertently injecting an artery and temporarily blocking blood supply to the nerve or area of the spinal cord. The technique performed where a patient is sitting up is called the interlaminar approach. This can also be done with a patient lying on their stomach. In this technique, the needle is slowly advanced near the midline with a goal of targeting the area between adjacent vertebrae. The main risks with this approach involve the development of a bleed or clot called an epidural hematoma.

Both techniques have rare instances of infections, nerve injury and bleeding. Think of the interlaminar technique as using a shotgun approach, while the transforaminal technique is more of a targeted rifle approach. The transforaminal technique is a bit more specific to an individual nerve root.

Question
Is it true that I will need a series of three shots to reduce my pain?

Answer
Not really. At Carolina NeuroSurgery & Spine Associates, we have found it to be very rare for a patient to need three epidural steroid injections. While it can sometimes take more than one injection to reduce back pain, there is no real medical evidence that three is better than one. In our experience, most patients do well with one injection. But, there is a small percentage of patients who need more than one shot to get the inflammatory nerve root pain under control.

Question
Are there any long-term risks of ESIs? I have heard my bones will disintegrate over time and these will destroy my back cartilage.

Answer
There does not appear to be any proven long-term detrimental effects of ESIs (epidural steroid injections) on spinal discs, joints or surrounding structures. Most of the concern of receiving multiple ESIs over the course of years involves exposure to steroids. Cumulative, long-term effects of steroids can elevate blood pressure, lead to early cataract formation and promote weight gain amongst other things. Making sure you are keeping up with your annual medical examinations with your family physician would be enough to identify most issues.

Question
I have heard that I can have my nerves burnt out to relieve pain. Is this true and how would this help my back issues? Don’t I need my nerves? Is this permanent?

Answer
Radiofrequency ablation (RFA) is a procedure where a small heated needle tip is applied to tiny nerves that supply sensation to the spinal joints. The needle tip basically burns or cauterizes the nerve fibers and ultimately blocks the pain signals from reaching the brain. RFA is used for the treatment of chronic back pain associated with spinal arthritis. These nerves are not really needed for any functional type of activity so there is no concern that they will be missed. Typically, the nerves will regenerate in 9-12 months and the procedure can be repeated if helpful.

SECTION 11: CUTTING EDGE SURGERY

Question
Tell me about that Laser Spine Surgery that I hear so much about?

Answer
Laser spine surgery has received tremendous marketing and publicity in recent years. Touted as a quick and safe alternative to traditional open incision surgery, laser spine surgery has generated lots of questions from patients. While it is an option, there are important factors you should consider.

Laser surgery involves the use of an intense, focused heat source that must be precisely controlled around the spinal cord and nerve roots. Potential complications from this procedure are a definite concern. And although lasers are another tool available for spine surgery, in order for them to be used, an incision must still be made in the skin. Therefore, laser spine surgery is not incision-free surgery after all!

Many insurance plans still consider this type of surgery to be experimental. Practices performing laser spine surgery may request a large cash deposit prior to the surgery. The spine surgeons of Carolina Neurosurgery & Spine Associates offer many research based, minimally invasive, alternatives to Laser surgery that are typically covered by your insurance and have great long-term success rates.
**Question**

Spine surgery with rods and screws? You want me to go through what?

**Answer**

It’s called a lumbar fusion. The general concept involves the use of spinal implants and hardware to provide stability to an area of your spine that is deteriorating. Similar to a carpenter stabilizing a shaky table leg, the use of specific screws and rods can provide stabilization to a vertebral segment that is moving excessively. This segment could be wearing down an intervertebral disc and possibly contributing to stenosis and spinal nerve impingement. Lumbar fusions can be performed from a variety of approaches. The most common is from the back (posterior). Recovery times can vary, ranging from three to six months.

**Question**

What are the main long-term concerns with undergoing a lumbar fusion?

**Answer**

Over time, it is possible for the vertebral segments above and/or below the fusion level to wear down excessively. This can lead to developing new instability in the spine and ultimately require having to undergo another surgical procedure to stabilize the spine. If several levels are fused, increased mechanical stress may be felt in the surrounding spinal muscles and possibly in the sacroiliac joints, leading to increased back pain. Many times this type of pain can be addressed adequately through physical therapy and corticosteroid injections.

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**SECTION 12: SPINE AND DINE (FOOD FOR THOUGHT)**

**Question**

Does it matter what I eat? Can food play a role in my pain?

**Answer**

Most patients with chronic back issues suffer from daily inflammation as an underlying contributor to pain. Herniated discs, pinched nerves, and pulled muscles all lead to localized states of inflammation in the body. Treatments such as ibuprofen, steroid pills and injections help to reduce inflammation, but what we eat can also play a vital role.

Research has proven that many foods in the standard American diet cause increased levels of inflammation in our bodies. Foods high in trans-fats (fried foods mainly) are especially poor. Essentially, any type of fast food is loaded with inflammatory trans fats. Within a few hours after eating these types of food our blood CRP levels (CRP is a measure of inflammation) can escalate significantly and remain elevated for hours. This can make any area of pain in your body more sensitive and irritated. It can also cause detrimental effects on your heart, mood and general health.

So what is the answer? A diet rich in fresh fruits and vegetables, and high fiber that is also low in processed foods and sugar is a good starting point. Eliminating trans-fats from your diet and focusing on mostly plant-based healthy fats can shift the metabolic processes in your body to a more favorable state. The byproduct of eating this way is often less pain over time along with weight reduction and an improved sense of energy and well-being.

**Question**

What about carbs? Are they bad for me? How much should I eat?

**Answer**

Carbohydrates have received a bad rap for quite some time. Starting many years ago with the Atkins diet, people stopped eating carbs and focusing more on meats and fat. In reality, our bodies need carbohydrates to function properly. Carbs are the main fuel of our brain cells and without them poor health can develop. However, carbohydrates derived from processed foods and sugars should definitely be avoided.

Most of your carbohydrates should come from fresh fruits and vegetables. Whole grains such as quinoa, brown rice and buckwheat are also excellent sources of carbohydrates. When carbs are derived from whole foods, the effect on our body’s blood sugar and insulin levels is typically negated by the fiber found in these foods. Stay away from any foods that have “enriched” flour or high levels of table sugar because that can lead to elevated blood sugars and weight gain.
SECTION 13: BACK TO THE FUTURE

Question
My discs are blown. Could stem cell injections help me?

Answer
As of 2018, the research on stem cell use for degenerative disc disease remains unclear, but promising. Stem cells are thought to possess healing properties due to their ability to develop into new, healthy cells that could heal injured areas such as tendons and discs. Trials are ongoing across the country to investigate injection of stem cells into worn out discs to see if they will regenerate material and reduce pain. Stem cells can be harvested from your hipbone or fat cells. Currently, the injection of stem cells is not typically covered by insurance. Thus, the cost for this process can be several thousand dollars.

Question
Are there treatment alternatives similar to stem cell injections that less expensive?

Answer
Platelet Rich Plasma (PRP) injections have been around for a longer period of time and may be an alternative to stem cell injections. PRP involves taking a blood sample from your arm and placing it in a centrifuge to ultimately concentrate the amount of platelets in the sample. Platelets are your body’s own healing proteins that are sent to any injured area to help form a scab or internal scar. Platelets are also chemical messengers and signal other healing proteins in your body, including stem cells, to be delivered to an area of injury and initiate the healing response. Currently, PRP treatment involves injection into injured discs to help promote healing. Clinical data remains sparse regarding how effective this can be, but initial trials are promising.

CONCLUSION: DON’T HOLD BACK

Question
Can I ever live a normal life again with my back issues?

Answer
Take comfort in knowing that most episodes of low back pain can be healed with proper treatment. By focusing on living a healthy lifestyle, episodes of pain will diminish and function can return to normal. Patients who eat mostly fresh fruits and vegetables, exercise routinely and keep their weight down tend to require the least amount of medication and have less low back pain episodes. Interventions such as epidural steroid injections, acupuncture, stress management, daily core exercise and flexibility training all can produce pain relief and better quality of life. Additionally, technological advances have resulted in improved outcomes following back surgery. Future investigations into regenerative medicine techniques are also quite promising.
**APPENDIX A: I BACK THESE FAVORITE RESOURCES**

Following is a list my favorite resources and products to help with your back pain:

- Home Pilates DVD—Stott Pilates Be Kind To Your Spine. Simple and safe way to get started with basic exercises to build up your core strength.
- Vinyoga therapy for back pain—DVD by Gary Kraftsow. This is a terrific research-based yoga routine to help address back pain. It is very gentle and takes only minutes to perform. This is the only yoga routine that has been published in major medical journal (Annals Internal Medicine). I highly recommend this as a safe entry into yoga for back discomfort.
- Everyone with back issues needs a nice foam roller. Using a foam roller daily can help break down trigger points in your legs and back. A simple search on YouTube will teach you everything you need about foam rollers.
- I also recommend use of the lumbar posture pump. This is a nice product to help counteract loss of our typical lordosis. It can be particularly useful for discs pain that is brought on by bending forward (flexion).
- A terrific product to help massage away trigger and tender points in our backs, hips and legs is the TheraCane. When coupled with the information in their website, I took with the Institute for Functional Medicine.
- The American Academy of Medical Acupuncture has a nice summary of the benefits of acupuncture on their website.
- Traumeel is my favorite over-the-counter ointment to help with sore muscles. As a homeopathic product, it uses arnica to help reduce inflammation and pain associated with any muscle strain. This is also a great product to use after car accidents.
- Everyone needs a good lumbar/back support device. I recommend using one to help keep a nice, neutral spine while driving. It is also beneficial to keep your seat level at or above your knee level. This can be hard in sedans so sitting on a cushion may prove useful as well.
- Mind-body medicine has been used for centuries to help people cope with pain. Dr. Gurgevich is a world leader in self hypnosis and I highly recommend his guided audio program.
- The Mediterranean diet is one of the more popular forms of eating to reduce inflammation in the body and promote longevity. I have attached a good summary of this diet taken from a training course I took with the Institute for Functional Medicine.
- The American Academy of Medical Acupuncture has a nice summary of the benefits of acupuncture on their website.

**My favorite two books on health are:**

1. *Healing Back Pain Naturally,* by Dr. Art Brownstein. This is a classic on the power of mind over body. The book includes many self-help techniques including mind-body approaches, as well as some basic exercises. This book is highly recommended.

2. *How Not to Die* by Dr. Michael Greger is one of my favorite books on nutrition. Dr. Gregor presents a ton of literature regarding the benefits of eating a whole foods, plant-based diet. This way of eating can significantly low systemic inflammation in the body and promote longevity. It is a must for your library. I would also add his wonderful accompanying cookbook.

**APPENDIX B: FOOD PLAN TO REDUCE INFLAMMATION AS RECOMMENDED BY THE INSTITUTE FOR FUNCTIONAL MEDICINE**

The purpose of this food plan is to help you achieve and maintain health by decreasing foods that lead to inflammation and pain, decreasing your intake of harmful chemicals, and optimizing your intake of healthy protein, fat, and carbs. It can also aid in weight management and in the prevention of heart attacks, type 2 diabetes, cancer and strokes. The plan may be modified if you have food allergies or are gluten sensitive.

### Steps for Healthier Food Choices

Start where you are and proceed step by step toward the goal. Follow these overall guidelines:

- Choose low-fat, organic dairy products (milk, cheese, yogurt, ice cream, etc.) if you eat dairy products.
- Use a good multivitamin mineral supplement (taken at meals) that requires at least 2 per day with minerals (calcium 500 mg per day and magnesium 500 mg per day) and antioxidants (A, C, E, selenium).
- Choose low-fat, organic dairy products (milk, cheese, yogurt, ice cream, etc.) if you eat dairy products.
- Choose veggie juices such as V 8 or an organic version (Knudsen Very Veggie Organic, Lakeview Super Veggie).
- For fruit juice, choose one with a lot of phytonutrients and antioxidant quenching abilities.
- If you are trying to lose weight, limit juices other than veggie juices to 4-6 ounces per day.

### Steps for Healthier Food Choices

- Minimize or eliminate (ideally) partially hydrogenated oils in processed foods (use foods labeled “No Trans Fats”).
- Minimize or avoid eating at fast food restaurants. At restaurants, choose butter-based toppings on the side; eliminate sour cream and cream-based dishes. Choose salads (with oil and vinegar or vinaigrette), vegetables and avoid deep fried entrées.
- Minimize or avoid deep fried and breaded foods.
- Minimize sugars and starches (crackers, potatoes, rice, scones, cookies, etc.).
- Increase healthy fruits such as apples and berries (2-3 servings per day).
- Use healthy veggies such as those in the veggie list above (Carbohydrates section). Have a minimum of 3 servings per day.
- Try to choose organic fruits and veggies whenever your budget allows.
- Eat protein at every meal.
- Try to purchase free-range poultry and meat (if you are not vegetarian).
- Choose low-fat, organic dairy products (milk, cheese, yogurt, ice cream, etc.) if you eat dairy products.
- Use a good multivitamin mineral supplement (taken at meals) that requires at least 2 per day with minerals (calcium 500 mg per day and magnesium 500 mg per day) and antioxidants (A, C, E, selenium).
- Drink green tea daily (other teas such as white and red are also healthy).
- Minimize drinks with fructose and corn syrup.
- Choose veggie juices such as V 8 or an organic version (Knudsen Very Veggie Organic, Lakeview Super Veggie).
- For fruit juice, choose one with a lot of phytonutrients and antioxidant quenching abilities.
- If you are trying to lose weight, limit juices other than veggie juices to 4-6 ounces per day.

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- Minimize or avoid deep fried and breaded foods.
- Minimize sugars and starches (crackers, potatoes, rice, scones, cookies, etc.).
- Increase healthy fruits such as apples and berries (2-3 servings per day).
- Use healthy veggies such as those in the veggie list above (Carbohydrates section). Have a minimum of 3 servings per day.
- Try to choose organic fruits and veggies whenever your budget allows.
- Eat protein at every meal.
- Try to purchase free-range poultry and meat (if you are not vegetarian).
Focus on these food items

Proteins

Goal: To get sufficient healthy sources of protein to supply the amino acids that help to preserve and build muscle, and heal musculoskeletal tissues.

Protein is made from amino acids. Adequate protein is needed every day. It helps to maintain your muscles, and amino acids are a building block for many important cell reactions. Everyone needs at least .8 grams of protein per kilogram of body weight (weight in pounds divided by 2.2).

Protein guidelines:
- Have protein with each meal and snack if possible.
- Limit red meat or eliminate it unless it is free-range, grass-fed beef or lamb.
- Avoid charring/browning proteins/meats.
- Use organic meats or free-range meats and poultry (chicken and turkey) when possible.
- Use free-range eggs for protein, but avoid browned or smoked ones.
- Avoid lunchmeats that have sodium nitrate or nitrates. Nitrate-free turkey is a good protein source.
- Use walnuts as a protein source for snacks and for cooking.
- Use sources of omega-3 fats, including flax seeds and oil (don’t heat flax), sardines, ocean salmon, and walnuts.
- Use a daily supplement of 1-4 grams of high EPA/DHA fish oils (capsule or liquid) purified to eliminate mercury, pesticides, etc.

Fats

Goal: Eat healthy fats and decrease unhealthy fats.

Your fat intake is directly related to inflammation. Follow these guidelines:
- Use coconut oil, canola, or olive oil (extra virgin is best) for cooking.
- Make your own salad dressing with 2 parts flax oil, 4 parts extra virgin olive oil, and red wine or balsamic vinegar (may add a small amount of toasted sesame for flavor).
- Use omega-3 fats, including flax seeds and oil (don’t heat flax), sardines, ocean salmon, and walnuts.
- Use a daily supplement of 1-4 grams of high EPA/DHA fish oils (capsule or liquid) purified to eliminate mercury, pesticides, etc.
- Decrease saturated fats (e.g., ice cream). Try to limit foods that have more than 6-8 grams of fat per serving.
- Choose low-fat ice creams, low or nonfat yogurt, and low or healthy fat salad dressings (vinaigrette, oil and vinegar).
- Avoid red meat or eliminate it unless it is free-range, grass-fed beef or lamb.
- Have protein with each meal and snack if possible.
- Limit non-nutritive carbs and use healthy complex carbs as an energy and vitamin source.
- Have a daily intake of healthy and colorful fruits (berries, pomegranate, apples, pears, and citrus fruits) and veggies for fiber and beneficial phytochemicals to help your body quench free radicals and biotransform (detoxify) toxins.
- Eat healthy vegetables daily (organic when possible), especially cruciferous vegetables (broccoli, cabbage, cauliflower, kale) as they help your body detoxify.
- Eat other vegetables for their nutrients and fiber, such as chard, spinach, celery, squash, zucchini, and cucumber.
- Eat from the onion family daily (onions, leeks, chard, garlic, chives) as it is good for connective tissue and detoxification.
- Use dry-roasted or raw nuts.
- Eliminate deep fried and breaded fried foods (French fries, Chicken Nuggets, etc.).
- Avoid all partially hydrogenated oils and trans fats by reading labels, especially (“partially hydrogenated _______ oil”).
- Use healthy fats and decrease unhealthy fats.
- Consider juicing organic vegetables to improve your intake of phytochemicals. Try celery, apple, carrot, kale, broccoli, spinach, and beets, with lemon or lime and some protein powder.
- Limit cookies, cake, scones, muffins, potatoes, starches, sugars, rice, pasta, and breads unless you are training for a long aerobic event or do not have a weight management problem.
- Eat beans (kidney, black, pinto, garbanzo, etc.) for soluble fiber and to limit colon inflammation.
- Use bread that has at least 3-5 grams of protein and fiber per slice. Look for sprouted grain and seed breads.
- Use whole grain sources for carbs, such as quinoa, millet, etc.
- Only eat breakfast cereal that has at least 8 grams of fiber and 4-10 grams of protein per cup.
- Minimize and avoid foods containing ingredients that have MSG or hidden MSG. To get a current list of hidden MSG in foods, do a search for “MSG and MSG, Hidden”.

Carbohydrates

Goal: limit non-nutritive carbs and use healthy complex carbs as an energy and vitamin source.

- Limit cookies, cake, scones, muffins, potatoes, starches, sugars, rice, pasta, and breads unless you are training for a long aerobic event or do not have a weight management problem.
- Eat beans (kidney, black, pinto, garbanzo, etc.) for soluble fiber and to limit colon inflammation.
- Use bread that has at least 3-5 grams of protein and fiber per slice. Look for sprouted grain and seed breads.
- Use whole grain sources for carbs, such as quinoa, millet, etc.
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Food Additives

- Try to avoid artificial colorings and diet beverages with aspartame.
- Consider juicing organic vegetables to improve your intake of phytochemicals. Try celery, apple, carrot, kale, broccoli, spinach, and beets, with lemon or lime and some protein powder.
- Limit cookies, cake, scones, muffins, potatoes, starches, sugars, rice, pasta, and breads unless you are training for a long aerobic event or do not have a weight management problem.
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- Minimize and avoid foods containing ingredients that have MSG or hidden MSG. To get a current list of hidden MSG in foods, do a search for “MSG and MSG, Hidden”.
Sample Meal Ideas

Breakfast Ideas
- Get at least \( \frac{1}{4} \) of your protein needs met at breakfast.
- Protein Smoothie (see protein section above to make it). Use enough protein powder to get 20-25 grams.
- Use breakfast cereals that are high in protein and fiber, such as Nature’s Path Optimum Slim or Kashi Good.
- Add mixed nuts and fruit, such as blueberries and bananas to cereal.
- A 2-3 egg omelet or egg scramble with veggies such as spinach, leeks, broccoli, tomatoes, or chives is a good breakfast choice.

Lunch Ideas
- Have a sandwich with high fiber, high protein sprouted grain bread (see carbohydrate section above). In your sandwich, have nut butter (such as almond, macadamia, or cashew) or turkey or chicken (with no nitrates) with veggies (lettuce, tomatoes, olives, cucumber, onions) or organic cheese with veggies.
- If you have a salad for lunch, add healthy protein such as beans (kidney, garbanzo, pinto), sliced nitrate-free turkey, ocean salmon, or organic cottage cheese. Use numerous colorful veggies in your salad and try to include cruciferous veggies such as broccoli. Use an oil and vinegar salad dressing or make your own (see fats above).

Dinner Ideas
- Try to have 2 servings of healthy veggies and a low fat protein source.
- Minimize desserts (other than fruit).

Additional Study References that May Want to Read Online:

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MEET THE AUTHOR

Dr. Sanjiv Lakhia is a board certified physiatrist who cares for patients at the Ballantyne and Rock Hill offices of Carolina Neurosurgery & Spine Associates. As a physiatrist, he specializes in non-surgical approaches to spine and orthopedic conditions and offers a diverse range of innovative treatments for back pain, including acupuncture, spinal injections and prescriptive exercise. Dr. Lakhia favors a conservative, holistic approach to spine care and understands the importance of getting to know each patient. He believes that listening to a patient without judgment is essential to finding the best course of treatment to for back pain relief and to a normal life.

He attended medical school at the Ohio University College of Osteopathic Medicine and graduated with a Doctor of Osteopathy (DO) degree. Dr. Lakhia then completed his residency in Physical Medicine & Rehabilitation at Carolinas Rehabilitation located in Charlotte. After practicing medicine in Cincinnati for seven years, he returned to Charlotte to join Carolina Neurosurgery & Spine Associates.

Prior to medical school, Dr. Lakhia earned a degree in Chemical Engineering from the University of Dayton. While he was in college, he had a personal medical experience where he met several physicians who encouraged him to consider healthcare as a career. After serving as a volunteer with Hospice and at a children’s emergency room. Dr. Lakhia knew he wanted to become a physician, just like his grandfather.

When not caring for his patients, Dr. Lakhia cherishes spending time with his wife and three children exploring the beauty of the Carolinas. He also enjoys regular exercise, reading, meditation and traveling to meet friends and family.

A PRACTICE OF BRAIN & SPINE CARE INNOVATION

Since 1940, Carolina Neurosurgery & Spine Associates has provided comprehensive brain and spine care for both adults and children by combining subspecialized expertise with genuine compassion. We are the largest neurosurgical practice in the country, with over 50 physicians and therapists in the specialty areas of adult and pediatric neurosurgery, physical medicine & rehabilitation (physiatry), orthopaedic spine surgery and pain management.

The physicians of Carolina Neurosurgery & Spine Associates are pioneers in the field of neurosurgery, on both a local and national scale. We treat a vast range of spine injuries and disorders, spinal tumors, cerebrovascular disorders (strokes, aneurysms, arterial venous malformations), brain tumors, trigeminal neuralgia and concussions. We also offer the largest team of pediatric neurosurgeons on the east coast.

Although our practice includes some of the most experienced neurosurgeons in the world, our primary goal is to deliver effective care for each patient without surgery whenever possible. We offer numerous minimally invasive and non-surgical treatment options and a comprehensive physical therapy team.

Carolina Neurosurgery & Spine Associates has been responsible for many neurosurgical milestones in the Carolinas, including groundbreaking procedures and therapies for spine disorders, aneurysms, movement disorders and brain tumors. Over the past 15 years, the practice has participated in over 40 clinical trials related to spine, brain and vascular disorders.

In addition to these pioneering surgical procedures, we have also covered new ground in other areas of treatment. Over a decade ago, we introduced the Carolina Sports Concussion Program, the first of its kind in the region to assess and manage sports concussions in athletes age 10 and older. In 2010, we introduced the only open and upright MRI to the region, making it possible to scan patients while sitting, standing, bending, lying flat or in other positions not previously possible with traditional MRI imaging.

Over the past 75 years, Carolina Neurosurgery & Spine Associates has continually redefined what it means to be a modern neurosurgical practice. We take pride in the accomplishments of our past and realize our obligation to set even higher goals for our future. This drives us each day to better serve our patients, seek the best possible outcomes for them and improve their lives.

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