Critical Factors For Successful Spine Surgery

Exclusively Sponsored by Titan Spine
CRITICAL FACTORS FOR SUCCESSFUL SPINE SURGERY

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Call 844-819-1515 to Speak with a Patient Care Coordinator.
It is with great pleasure that I introduce you to Back Pain Centers of America’s Inaugural Spine E-Book, a free patient educational resource created to provide information to you about the latest treatments for neck and back pain, what questions to ask when considering surgery, and a whole host of resources and materials to reference whether you or a loved one is suffering from neck or back pain.

Today’s healthcare environment is often confusing and chaotic for patients. We hope that you will be informed in your quest for relief and will make the best decision for you. Research shows that patients who understand what is involved in a proposed surgical procedure experience less anxiety and are better able to make the decision that is best for their life and specific circumstances. Sometimes, the secret is in knowing what questions to ask.

In addition, those patients who take an active role in their healthcare decisions and habits more often experience a better outcome. With the advent of minimally-invasive surgical techniques, extended hospital stays and long, painful recovery times are no longer the norm. For this reason, it is our desire to provide the most up-to-date information to guide you towards a life without pain.

It is my sincere hope that as you read this e-book, you will find the information you need to gain a better understanding of how spine surgery can positively impact your life or that of a loved one. Please let me know of any thoughts you have about the information we provide, or suggestions on how to improve our patient guide. You may reach me at president@backpaincenters.com.

Sincerely,

Brent Wheeler
President
Back Pain Centers of America

president@backpaincenters.com
Titan Spine is honored to collaborate with Back Pain Centers of America (BPCA) on their Inaugural Spine E-Book. As a leader in the spine industry, we share BPCA’s desire to be a resource for those seeking the best options when it comes to spinal fusion surgery and are proud to provide you with the information you need through this free format.

We believe that education and understanding are key in making the best, most informed decisions. This E-Book has been designed to equip you with an arsenal of tools in your search for the best options to address your back and/or neck pain.

Titan Spine strives to improve lives for those that end up requiring spinal fusion surgery by providing unique, innovative interbody fusion devices with a novel surface technology that has been proven to help patients heal faster. And to do that, we had to challenge the status quo that the recovery from spinal fusion surgery is a six to twelve-month process using standard interbody implants. So, we dedicated ourselves to developing an implant that will help you get your life back as soon as possible, which culminated in our award-winning nanoLOCK® surface technology.

The strength of our titanium devices reflects the strength of our patients. With Titan Spine nanoLOCK® implants, they are back, in record time, to doing what they do best: living life to the fullest. From running a 5k twelve weeks after surgery, to getting back to being mom or dad as quickly as possible, their stories are the story of Titan Spine.

We invite you to get to know us better by visiting our website and following us on Facebook, Twitter, and YouTube. We look forward to joining you on the road to recovery.

Good health,
Peter Ullrich, MD
CEO
Titan Spine
At Back Pain Centers of America, we want to help you know what to expect when you are considering spine surgery. Along with our exclusive sponsor, Titan Spine, it is our hope that this book will allow you to take an active and informed role in your healthcare journey.

Many believe that spine surgery is a daunting decision that is easier to delay than to schedule. Now, however, spine surgery may be accomplished through minimally-invasive procedures that allow you to recover quickly and with less pain.

This book was developed to individually examine the critical factors that impact successful spine surgery and is provided to you as a free resource to help you move along the path towards better health and regaining those activities that you enjoy.
Americans who experience chronic pain represent a group of people equal to those who have heart disease, cancer and diabetes.
There are some cases that require spine or neck surgery to resolve the pain a patient experiences. In these situations, a patient who can accurately tell a doctor or healthcare professional where their pain is located, how severe that pain is and whether it is a constant pain or one that comes and goes, will help the physician correctly diagnose the problem. Doctors prefer to correct the cause of your pain so that you will have long-lasting relief. Therefore, your accurate comments about your pain will assist your spinal specialist to successfully create a customized treatment plan, specifically for you, so that you can have the best opportunity to regain the lifestyle that you love.

For this reason, the following communication tools, designed by the American Chronic Pain Association, are provided in this e-book to help you communicate important information to your doctor. Pain is always changing, and these tools will enable you to better express your pain and how it impacts your daily life.
**Ability Chart**

Having pain can make the simplest everyday task difficult. It can be hard to explain to your health care professional how climbing stairs, getting out of a chair, or bathing might be challenging. This tool will help you to identify all the areas where you struggle and how much trouble you have with each item. Simply circle your level of difficulty. 0 means not difficult at all and 10 means it is extremely difficult for you to accomplish.

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**Pain Level**

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**Climbing Stairs**

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**Descending Stairs**

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**Getting Out of a Chair**

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Daily Activity Checklist

To successfully manage your pain, it’s important to focus on your ability to function, not just your level of pain. This checklist can help you to see where you are having difficulties with everyday activities. It also is a useful way to communicate your progress to your healthcare professional.

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<tr>
<th>Activity</th>
<th>Unable</th>
<th>Difficult</th>
<th>Extra Effort</th>
<th>Some Effort</th>
<th>Easy to Do</th>
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<tr>
<td>Sitting for more than 1 hour</td>
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<td>Driving</td>
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<td>Lifting more than 5 pounds</td>
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<td>Working at the computer</td>
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<td>Walking</td>
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<td>Light yard/house work</td>
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<td>Cooking</td>
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<td>Personal Hygiene</td>
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<td>Visiting with family/friends</td>
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<td>Shopping</td>
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<td>Attending social functions</td>
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<td>Child care</td>
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<td>Sleep</td>
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<td>Job Responsibilities</td>
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<td>Sexual intimacy</td>
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Call 844-819-1515 to Speak with a Patient Care Coordinator.
Pain is an important communication clue as to what is happening inside the body.

Along with clinical pain management, there are other pain management modalities available:

- Massage Therapy
- Acupuncture
- Chiropractic Care
- Electrical Stimulation
- Meditation
- Behavioral Modifications

There are non-surgical and conservative options for pain.

Learn More >
BECOME INVOLVED

- Become involved in your healthcare decisions
- Self-education and knowledge decreases fear and anxiety
- Make preparations in advance of surgery
- Maintain a positive attitude and healthy habits
But... I am still in pain!

Once pain has been described and more conservative treatments have been explored with a spine specialist, it may be time to move to the next step, which may be surgery.

If your doctor determines that surgery is needed to resolve the cause of your pain; then, in most cases, delaying that surgery may only increase the amount of damage to your body and may lengthen the necessary recovery time.
Over 120 muscles are contained in the spine.

Mind Body Connection

Neurosurgeons and orthopedic spine specialists understand that the mind-body connection can make a difference in surgical outcomes. Those patients who are involved in their healthcare decisions and have confidence that their surgeon can help them, not only express more hope, but experience a quicker recovery from surgery and engage more consistently in rehabilitation activities, even if they may seem difficult.¹

Likewise, when a patient understands the reasoning and necessity for spine surgery to alleviate pain caused by their specific health situation, the mind can participate in the healing process by engaging positively and taking responsibility to regularly complete the rehabilitative exercises and develop healthy spine habits.
Increase Your Knowledge

The most common cause of back pain and spinal cord trauma in America is car accidents.

When approaching any unknown situation, most people discover that once they gain knowledge about that situation, their anxiety surrounding the previously unknown event is significantly lowered. This concept applies to spine surgery as well.

As you gain an understanding of the cause of your pain from your doctor and how it may be corrected with surgery, you may experience less anxiety. It will also be easier to explain your situation to family members and gain their support for the upcoming surgery.

New, minimally-invasive techniques, fellowship-trained spine surgeons, and the use of outpatient surgery centers have shown to positively impact spine surgery outcomes. Finally, spine surgeries can be an out-patient procedure!

Next: Learn about Minimally-Invasive Surgery
Minimally-Invasive Surgery

Historically, back surgery has had a reputation for being extremely painful and included a long recovery period with a high incidence of complications. This reputation was partially attributed to the fact that traditional, painful, open-back surgeries necessitated a long incision that included moving muscles and soft tissue as the surgeon worked to get to the spine and treat the problems causing pain.

Today, minimally-invasive surgery has considerably changed spinal surgery.

1. LESS INVASIVE
   With an incision that is usually about an inch in length, the surgeon is able to insert a tubular instrument through which he performs the surgery.
   - Less trauma to muscles
   - Less pain

2. OUTPATIENT PROCEDURE
   Most patients who have minimally-invasive surgery are able to go home the same day.
   - Faster Recovery
   - Less opportunity for infection

3. QUICKER RECOVERY
   Pain relief is lasting because the cause of the pain is addressed by the surgical procedure.
   - Less complications
   - Back to the activities you enjoy

Call 844-819-1515 to Speak with a Patient Care Coordinator.
Minimally-Invasive Surgery

Technological advances have changed how spine surgeries are executed, giving patients and doctors the option of minimally-invasive back surgery procedures (MIS) which cause less trauma, results in less blood loss from the muscles and tissue, produces less pain, lowers complication rates and results in quicker recovery times. ²
Minimally-Invasive Surgery

Minimally-Invasive Surgery (MIS) is usually performed through an incision that is less than 1” (one-inch). A long, thin, surgical tube is inserted into the tiny incision to push the muscles out of the way as opposed to the older, traditional method of cutting through the muscles.

- MIS minimizes trauma to the muscles and soft tissue and explains why there is less pain after the surgery compared with the way back surgeries were performed in the past.
- The camera inserted in the long tube allows the spine surgeon to confirm the diagnosis.
- A microscope may be used to assist the doctor in correcting the issue that is causing the pain.
- A retractor is used to remove debris, bone spurs and more as the spine surgeon restores the area to a healthier condition.
Outpatient Surgical Centers

Studies show that patients prefer outpatient surgery centers
There are lower incidences of infections and complications at outpatient surgery centers
Patients are happier when they are encouraged to return home to recover

The spine has an excellent memory, and as such, it’s recommended that you take care to provide it with proper support from a young age. Controlling your posture, engaging in strengthening the back muscles, as well as stretching are all beneficial to the long-term health of your spine.

Quicker Recovery

- Less blood loss
- Less surgical time under anesthesia
- Faster healing due to a smaller, focused surgical procedure
- Less pain provides better rest and healing
- Quicker return to activities and responsibilities
Fellowship-Trained **Spine Surgeons and Neurosurgeons**

Since spine surgery is moving away from the traditional open-back surgery to the use of innovative surgical and non-surgical procedures, fellowship-trained spine surgeons or neurosurgeons possess the highest level of advanced knowledge and necessary experience to address spinal issues for patients.

Fellowship-Trained **Spine Surgeons**

An orthopedic surgeon works as a “resident” for five (5) years to focus on his/her orthopedic skills. After that period, he/she may decide to start practicing medicine or choose to hone his/her skills by specializing in an area (such as shoulder or spine) for an additional year of study and training. Today, many spine surgeons are “fellowship” trained, meaning that they have engaged in an additional year of specialized spine training after their residency to practice and perfect their skills.

**Neurosurgeons**

Neurosurgery requires the longest amount of training of any medical specialty available and includes a sub-specialization, through the fellowship program, in spinal surgery. Because neurosurgeons study the nerves, how the nerves move through the spine and out through the body, they have additional expertise in finding the cause of pain and properly correcting the issue.

Call **844-819-1515** to Speak with a Patient Care Coordinator.
CONSIDER SPINE SURGERY

When considering spine surgery, protect your best asset – your health – by making an appointment to speak with a spine specialist who can help you make the decision that is best for your health and personal life situation.

- Your doctor is your best resource for answers to your specific questions about a proposed medical procedure. Be sure to thoughtfully prepare for your office visit.

- Plan to provide access to your most recent MRI when you consult with your physician. However, be aware that there are many reasons he/she may require a new MRI:

  - The MRI is old and no longer a good representation of your current spine health
  - Technology is different and updated imaging equipment may provide more information
  - MRI is needed from a different angle

Call 844-819-1515 to Speak with a Patient Care Coordinator.
Prepare for **Consultation with Spine Specialist**

Capitalize on the opportunity to ask your doctor questions that concern you and your caregiver by using the following guide as a resource to plan those questions in advance of your office visit with your spine specialist. In this manner, you will make a more informed decision and one with which you are most comfortable. That does not mean that you won’t second-guess your decision. Most patients second-guess their decision as the surgical date arrives. Reviewing in your mind the information you learned about your health situation and the technological advances available to shorten the surgical procedure and recovery time will help you stay focused on doing what is best for your body.

The following questions are provided as a guide to spark thoughts about your health that are important to you and/or your caregiver. Choose the questions you wish to ask your spine specialist by placing a check in the box affiliated with your selected question. You may write questions in the space provided. Print this form and use it at your appointment. Remember to jot notes as questions are discussed.
Questions to Ask Your Spine Surgeon

☐ Are you a board-certified surgeon trained in spine surgery?
At Back Pain Centers of America, our physicians within the network are board-certified, fellowship-trained spine surgeons who are highly regarded among their peers and have the advanced training and experience that you can trust.

☐ Will the procedure be performed in a hospital or as outpatient surgery?
Back Pain Centers of America's network physicians recognize the benefits of outpatient procedures, especially lower infection rates, and will make this decision based upon your unique health requirements. Both options are available and your safety is our primary concern. Due to advanced technologies, most of our procedures are performed in an outpatient setting.

☐ Is there a minimally-invasive procedure that can address my problem?
The board-certified spine surgeons within the Back Pain Centers of America's network are highly trained in minimally-invasive procedures and will decide with you if you are a candidate. Lasers are used in some of our spine procedures when required.

☐ What size incision is used?
As surgical technologies advance, opportunities for smaller incisions that heal quicker are possible and are regularly utilized by the spine specialists making up the Back Pain Centers of America's network. Depending upon the procedure, these vary from 1/8” to 1” in most cases, and up to 4-6” in the rare case of a multi-level T-lift. Most all procedures take great care not to cut muscles which leads to a faster recovery time and less wear and tear on the body.

☐ What percentage of patients improve due to spinal surgery?
The physicians in the Back Pain Centers of America network address the underlying problem causing your pain and lack of mobility through spinal surgery, allowing patients to receive a better outcome. Call us, and our physicians can take a look at your unique situation and provide you with a detailed healthcare plan and prognosis.

☐ What is the expected length of my recovery time and what limitations will I have during that time?
At Back Pain Centers of America, our spine surgeons collaborate with you to create a treatment plan that minimizes your recovery time and gets you back to doing the things you love. In most cases, you will walk out of the facility on the same day. Many of our patients are back to minimal normal daily activity in 2-3 weeks, and are fully recovered within 6 weeks. These estimates vary by patient and procedure.

☐ What kind of pain relief will I need during the recovery time and what is the best way to manage that pain relief?
At Back Pain Centers of America, our network physicians are not engaged in prescribing narcotics for pain. Because each spine surgeon addresses the underlying cause of pain and injury, your pain management may be limited to the recovery time, enabling you to get back to activities you enjoy.

☐ Write your own question here.

*Not intended to be an exhaustive list of questions.

Call us at 844-819-1515 to get you started on the road to recovery today.
At Titan Spine, we have but one goal: getting patients back to health, activity, and happiness as quickly as possible following interbody fusion surgery. And to do that, we had to challenge the status quo of tolerating the use of outdated technology and accepting recovery times of up to six months to one year. So, we partnered with some of the brightest minds in the biomaterial sciences and dedicated ourselves to developing a surface technology to incorporate into our titanium interbody fusion devices to hasten bone growth and healing. The journey took us down to the nanoscale where the magic really happens. We have proven the ability to interface with the patient’s cells to begin the mechanisms for bone growth from virtually the moment our nanoLOCK® devices are placed during surgery.¹
Surface Technology

Surface technology refers to the manipulation of the surface of a medical device to have a desired effect on the human body. Titan Spine has pioneered the application of surface technology for interbody fusion devices to jump start the patient’s natural bone growth mechanisms almost immediately following interbody fusion surgery.¹

The company’s nanoLOCK® surface consists of a proprietary blend of textures at the macro, micro, and nano (MMN™) levels that has been proven to prompt the production of bone growth factors necessary for fusion while blocking factors that cause inflammation.²,³ Historically, interbody fusion devices have functioned only to hold two vertebrae apart and house biologic material that was entrusted to prompt bone growth by itself. Titan Spine revolutionized the interbody fusion device industry by making its implants active participants in the fusion process while working in concert with the biologic material placed within them. Titan Spine’s proprietary nano surface technology begins with titanium, a material with a long history of success in orthopedics due to its high strength and affinity for bony fixation. Building on these naturally advantageous properties, Titan Spine applies a unique, proprietary surface treatment to create an enhanced bone growth response, resulting in faster patient healing. nanoLOCK® is the first and only FDA-cleared nanotechnology device for the spine. It is the recipient of several awards, including the prestigious Whitecloud Award for best basic science, and has been used as an example of commercialized nanotechnology success in medicine by the White House Office of Science and Technology as part of the National Nanotechnology Initiative. nanoLOCK® has been published in five peer-reviewed publications and was commercially launched in August of 2016.

Oh, and did we mention that it is guaranteed to fuse?

#TitaniumSpirit

The strength of our titanium devices reflects the strength of our patients. They have what it takes to stand up to spinal pathologies, quickly. And with Titan Spine nanoLOCK® implants, their spine is as strong as their Titanium Spirit.

Our patient’s spinal pathologies didn’t stop them from getting back to doing what they do best: living life to the fullest. From running a 5k twelve weeks after surgery, to getting back to being mom or dad as quickly as possible, their stories are our reputation. And our reputation is their future. Here are some of the stories of patients that have chosen to Stand with the Future and find their Titanium Spirit with Titan Spine.
Shelly Maki:

“Back pain slowed me down to the point where daily activities like housework and simply moving about were too much. I felt depressed that I no longer could pick up my son or help tie his shoes. When I had my first fusion surgery, I put my trust in my doctor and was implanted with a plastic PEEK device because I didn’t know I had other options.

After failing to improve, I had reservations about moving forward with another surgery, but I knew I wanted to be more spontaneous and not just plan my life around pain. When meeting with Dr. Bruggeman, he told me, “Bone loves titanium!” and he had great confidence in the Titan implant’s ability to stimulate bone growth and fusion. After he left the decision in my hands, I went home to do my research and became hopeful and excited to move forward.

The very day I awoke from anesthesia, I got out of bed and could walk without the screaming pain like I had with the PEEK implant. Six weeks from my surgery I can easily say I felt almost completely healed. And now? Now I get to walk my dogs and play with my kids. I Stand With The Future.”
Dr. Bruggeman:

“When I first met Shelly, she was down, frustrated; she wasn’t able to fully enjoy life with her husband and children. She was treated by a previous surgeon that used a plastic implant that I may have chosen if I hadn’t been introduced to Titan Spine.

Unfortunately, she had developed a problem known as Pseudoarthrosis, or a non-union, in which the spine fails to fuse. When we first started talking about another surgery, naturally she was concerned.

We invested our time in talking about the different types of implants, how the Titan implant was different, and telling her the Titan story. I explained to her how this technology gave her the potential for a completely different outcome.

The most important feature in spinal implants in my practice is how the surface is created - to increase the chance for fusion. Most surfaces today have no purpose; in some cases, they can inhibit the one function we want to make happen: fusion.

Shelly’s surgery was an interesting one, in that we found a large amount of scar tissue surrounding the plastic implant. There are a lot of studies that talk about how plastic creates scar within the body, which is the opposite of a fusion. After surgery, Shelly continued on an excellent trajectory of pain relief and improved function; she seemed incredibly happy. I honestly couldn’t be more pleased with the progress she has made.

Every time I am able to use Titan Spine to improve these patients’ outcomes, it has been an incredible experience. If I were to sit across from a doctor today, who was still using plastic PEEK implants, I would encourage them to look at the literature. They’re using the same technology they’ve always used; and, unfortunately, when you do the same things you’ve always done, you get the same results you’ve always gotten.

nanoLOCK® is incredibly important for the future. We have used “good” implants in the past, but now, with nanoLOCK®, we’re going from “good” to “great”.

My name is Adam Bruggeman, and I Stand with the Future.”
Craig Cotton

“As an active single father of two boys, having debilitating leg and back pain changed everything for me. I was no longer able to run; swimming and biking became increasingly more difficult. As I started to lose that identity, I became depressed. I wasn’t able to be the father I am capable of being and the one my children deserve, as caring for my youngest, who is disabled, requires picking him up and carrying him throughout the day.

I had heard of plastic PEEK implants; it was an option that was given to me. After doing some research I decided to go with a Titan Spine titanium solution that was going to last a long time. My recovery went very well. Today I am doing the physical activities that I had been doing prior to surgery, but now I am doing them without pain. Two weeks after surgery, I was walking about two miles a day. Six weeks after surgery, I was walking up to six miles a day. By eight weeks, I was tolerating 40-mile bike rides. In addition to that, it feels great to be an active father again. I can lift my youngest son, put him in his car seat, and carry him where he needs to go.

I no longer need physical therapy, and there are no plans for further surgery. The post-surgery x-rays have shown significant bone growth. It’s amazing to think about what I had been dealing with and just accepting it as the norm. I am proud to Stand With The Future.”
Heidi Cocca

In 2006, I had an accident that required me to have a surgery to remove a portion of one of the discs in my low back. I was pregnant at the time, which added complications to the surgery. I found a surgeon who would perform the surgery with the intent that he would do it as quickly as possible for the sake of the baby, and I would have to come back again in the future to fuse that portion of my spine. Until the second surgery, often times the pain was so intense I wouldn’t move for the day. I missed out on a lot of family activities and became depressed, as I wasn’t a part of my family’s life anymore.

I heard of Titan Spine through my husband’s work, and I didn’t realize what a fusion with their technology could actually do to address my pain. After I woke up from surgery, one of the first things I said was, “The pain is gone.” Two weeks after the surgery I was up and going, and six weeks after surgery, I was getting my life back. I was taking walks and hikes that were up to five miles, something that was impossible before surgery. I am a part of my family again and doing things that I was chalking up to “Mom can’t do”. I now feel like I am a better role model to my children.

I would advise anyone who is facing a potential spinal surgery to educate yourself; know your options, know what type of implant technologies are available, know that you have a choice, and know that you are absolutely worth having the best product, which I believe is Titan Spine. I firmly Stand With The Future.”
Learn more at titanspine.com.

You have a choice in the interbody fusion device used in your surgery! If your spine surgeon will not agree to use Titan Spine’s nanoLOCK® technology, contact us at tsinfo@titanspine.com and we’ll help you find a surgeon that will.

1 Data on file.
Financial Information

As patients take on more responsibility for their healthcare costs, many experience financial stress concerning the payment of their medical bills at a time that they want to focus on their health needs and recovery. This financial stress can have serious repercussions on a person’s daily life, including postponing care, and it can also lead to mounting medical debt.

CONTACT BACK PAIN CENTERS OF AMERICA FOR FINANCIAL INFORMATION

$28 Billion is lost annually in the United States due to the associated costs of low back pain.
Make A **Decision**

As you and your orthopedic spine specialist explore the choices available for your condition, you may find that surgery is necessary to correct the source of pain. Statistics show, however, that patients frequently delay scheduling surgery.

During the delay, additional injury or deterioration may occur, as well as the possibility of new complications. In these cases, the spine and the related pain must be re-evaluated to develop a new treatment plan that considers the most recent information.

It is never easy to make a decision to have surgery, and only you, the patient, can decide what is best for your life. If a delay is unavoidable, discuss with your doctor a proposed timeline for surgery and how to move forward on a timetable with which you are comfortable.
Choose a Caregiver

Caregiver support by a close family member or friend the day of surgery and during the recovery process is crucial and should be part of the planning process. If one person is not available to handle your care and serve as your caregiver, consider making a schedule for close family and friends to pitch in and help.

If you do not have a caregiver, your doctor may schedule you to enter a rehabilitation facility after your surgery. While many people prefer to go home, this is an excellent opportunity to get the type of rest you need while having skilled care assist you in walking and other personal needs. Take advantage of the help offered, follow instructions and enjoy visits from family and friends.
Family & friends can work together to help make surgery & recovery a successful event.

- Make a caregiver support schedule
- Assign tasks and discuss expectations
- Use video conferencing when caregiver can’t be present in person. Ex: to take notes
- Choose one main caregiver to coordinate tasks for family and friends to help.

Balance caregiving between family and friends.

Several caregivers can work together successfully.

Schedule tasks and assign to caregivers in advance of surgery.

Make use of today’s technology to communicate.
Caregiver Tasks

- Available to speak to surgeon after surgery is complete
- Provides support during the at-home recovery
- Takes notes for patient during medical discussions
- Alleviates stress so patient can rest
- Keeps track of pain medicine schedule
- Provides reminders such as safe moving practices
- Answers phone calls and visits from friends/relatives
- Helps with family activities while patient rests
- Organizes healthy meals and snacks
- Emotional support

Call 844-819-1515 to Speak with a Patient Care Coordinator.
There are many different ways in which you may prepare for your spinal surgery so that your recovery may be as easy as possible. The following suggestions are to help you prepare your body to be in the best condition possible for a surgical procedure. Necessary medical preparations are included along with tips on how to prepare your home for the recovery process.

The US CDC and Prevention’s National Center for Health Statistics reported in 2010 that low back pain was the leading cause of pain.¹
Healthy Living

In the weeks leading up to your surgery, there are steps you can take in advance of your surgery that can contribute to your body’s healing process. For instance, if you have extra pounds to lose, this is the time to seriously focus on that goal. Extra pounds apply stress to the spine’s job of holding the body upright. Additionally, medical literature has shown that extra weight can seriously affect anesthesia, surgery and the recovery process. Losing some or all of those pounds before a surgical procedure will have a significant impact on your surgery and your recovery.

Therefore, the best preparations that you can do to increase the success of your surgical experience is to get your body in the healthiest state possible. These should also include:

- **Exercise** to increase muscle tone before surgery to facilitate ease of movement during the recovery process.
- **Eat healthy foods** such as vegetables and fruits to provide the body with a ready supply of nutrients necessary for the healing process.
- **Stop smoking** to place your body in the best condition for healing. The benefits are immediate.
- **Significantly reduce or stop all alcohol intake.**

Call **844-819-1515** to Speak with a Patient Care Coordinator.
Home Preparations

There are many ways in which you can prepare your home so that the postsurgical recovery time will be less stressful. The following suggestions will help you set up areas within your home for after-surgery needs and activities.

- Ask your physician if any home health equipment should be needed after the surgery, such as a toilet riser or a shower seat. These items may be covered by insurance and will make the transition back home easier, especially if advance preparations are made.
- Purchase a “reacher” for ease in picking up items without bending.
- Because you will not be able to twist, ask your physician to recommend a tool for toilet use.
- You may wish to rearrange your sleeping accommodations to facilitate ease of movement once you return home.
- Stock up on food, snacks, toiletries, regular prescriptions and any items you use daily and place them in a place for easy access.
- Prepare for the care of your pets.
- Make transportation arrangements for your return home after the surgery. Be aware that getting in and out of a low-riding vehicle will be difficult and painful after surgery. If a low-riding vehicle is necessary, consider sitting on something so that you don’t have to “rise up” in order to exit the vehicle.
MEDICAL PREPARATIONS

Once the decision is made to have surgery, your doctor’s office will coordinate medical tasks that may need to be completed before the day of surgery. Below is a sample list of preparations that may be scheduled.

- Necessary lab tests
- Adjustment of medications (Example: anticoagulants such as Coumadin (warfarin))
- Consultation with the anesthesiologist – remember to ask the anesthesiologist any questions or worries you may have
- Discussion with doctor and/or nurse to explain what will happen on the day of surgery
- Make a list of all prescriptions and supplements you regularly take and be prepared to show it to the doctor or nurse on the day of your surgery
- If you use a CPAP, be sure to let your physician and anesthesiologist know
- If you have ever become nauseated or sick after previous surgeries, you should let the medical staff know

Call 844-819-1515 to Speak with a Patient Care Coordinator.
ITEMS TO TAKE WITH YOU

Prepare in advance by gathering the following items to accompany you on the day of surgery:

- List of current medications and supplements – include notations concerning the dose and frequency of each item
- Insurance card
- Identification such as a driver’s license
- Information about the setting on your CPAP machine
- Brace for the neck or back if one has been ordered

It is understandable that the patient and caregiver experience anxiety as the surgery date approaches. Remember that your job as the patient will be to focus on healing and following the instructions from your doctor. When you return home, you will be very tired and will need to sleep as much as possible. This is normal, as the body heals during sleep. Additionally, anesthesia and pain medicines may make you sleepy.

Call 844-819-1515 to Speak with a Patient Care Coordinator.
Different facilities may have additional requirements.

**Day of Surgery**

Recognizing that each person’s experience is different, the following information is given as a general guide for the day of surgery. Just as you prepare for any time away from work or a vacation, the same type of proactive preparation should be employed for spine surgery.

**Remember these items**

- Walker, cane, brace, CPAP or any medical items needed
- Driver’s license
- List of current medications, dose and frequency of dose.
- Leave jewelry, cell phone and valuables at home
- Wear loose, button up or zip-up shirt with comfortable pants.
- Wear slip-on shoes and take a small suitcase of essential personal items
- Your caregiver may be responsible for your personal items during surgery, so minimize the items packed.

Your caregiver will wait in the surgical waiting room while you are prepared for surgery.

An IV will be started in your arm and you will probably speak with the anesthesiologist and doctor before the surgery.

Your caregiver may be able to join you after preparations are started and while you wait for the surgery to begin.

* Different facilities may have additional requirements.

Be sure that you arrange transportation to the surgery center in advance and that extra time is allowed to arrive promptly or early.

You will be asked questions about your adherence to the pre-surgery instructions. Answer the questions honestly so that the best care may be given to you.

Call **844-819-1515** to Speak with a Patient Care Coordinator.
Information About the **Day of Surgery**

- Your family will be given updates by a nurse during your surgery.
- When the surgery is complete, the spinal surgeon will meet with your caregiver in a private conference room to provide the details of the surgery and give an update concerning the recovery process.
- You will remain in the recovery room until the doctor determines you are ready to be moved.
- If you are in an outpatient surgery center, you may be moved to a room for observation while you fully wake so that it may be determined by the healthcare professionals that it is safe for you to go home.
- You will need transportation to your home by either a family or friend.
- You may notice that compression stockings were placed on your legs. They will increase circulation and push blood back towards the heart in an effort to prevent blood clots in the lower legs.
- Ice packs may be used to place at the incision site for pain relief, if needed.
- The nurse will monitor your breathing, circulation, pulse, oxygen, blood pressure and pain level.
- Your nurse will ask you to do deep breathing exercises and to move your feet and ankles.
- You may be required to successfully urinate before leaving the surgery center. If you have difficulty, a catheter may be inserted.

* Different facilities may have additional requirements.

Call **844-819-1515** to Speak with a Patient Care Coordinator.
Recover

The type of surgery that you had and your response to the surgery will determine how you recover. Every patient is different, but adherence to healthy habits will speed the recovery process.

- Eat vegetables and nutritious foods to speed the healing process.
- Rest. Your body heals while you sleep.
- Take pain medicine as prescribed to remain comfortable.
- Practice meditation or use relaxation techniques for pain control.

Pain Medicine Works Best
- Taken every 4-6 hours
- Taken before activity
- Taken before severe pain develops

Call 844-819-1515 to Speak with a Patient Care Coordinator.
As you progress through the recovery process, **pay extra attention to:**

- Post-operative appointments
- Consistent pain medicine schedule
- Physical therapy, occupational therapy and home health appointments
- Personalized instructions from your physician

It is natural to become discouraged during the recovery time, so it is helpful to remember that the disease that necessitated the need for surgery took a long time to develop, and it will take a little while to regain your complete recovery.

You may also want to remember that anesthesia may cause forgetfulness, dizziness and memory loss, especially in older adults. This is normal and should go away in time. You may also feel cold and experience shivering. Be patient as it takes time for the anesthesia to work its way out of your system.
Pain Management

Research shows that good pain management after surgery helps to speed the recovery process. Therefore, the goal is to manage pain in a manner that allows you to rest and start moving.

It is widely known that immediately after a surgical procedure you may need to take your pain medicine before you actually feel a need for it. Healthcare professionals will advise you to “stay ahead of the pain”. Following your doctor’s instructions are best. Your doctor may prescribe more than one pain medication to keep you comfortable, and you should take it according to the instructions.

The following pain rating scale is widely used in the medical field as a communication tool to express your level of pain as accurately as possible to your doctor and/or medical support team.

Those who include walking throughout their day are less likely to experience low back pain.
Pain Management Tips

- You received pain medicine through the IV while in the surgery center and may not feel a need for the first pill the nurse gives you. However, the body can heal better when not dealing with the stress of pain. For that reason, it is better to rely on the schedule your doctor recommends. If you wait until you need the pain medicine, it will be difficult to get the pain back under control.

- Your physician wants you to be as comfortable as possible and will customize a plan for your pain control.

- Ice packs are helpful and may be placed on the surgical site 3-4 times a day for 10-15 minutes, providing additional relief.

- Each person will have their own recovery schedule, but the goal is to get out of bed and walk as soon as possible after the surgery. You should always have someone assist you in the first couple of days.
Leaving the Surgery Center

It is extremely important that the patient and his/her caregiver(s) take an active role in following your doctor’s discharge instructions. These instructions are carefully written to prevent complications from occurring and a possible readmission to the hospital.

REMEMBER:

- Limit visitors and plan on sleeping
- Do not twist or bend at the waist – bend at the hips
- Use a pillow between your legs while you sleep on your side to prevent twisting in your sleep
- Keep your spine in a neutral position at all times
- Use assistance when moving from one place to another
- Take pain medicine before planned activity such as walking or physical/occupational therapy
- Sit up to eat all meals

Call 844-819-1515 to Speak with a Patient Care Coordinator.
Recovery Tips

The following tips are provided as suggestions for your recovery at home and serve as reminders of information your medical team may have previously provided you or your caregiver. Be sure to contact your doctor with any medical questions you may have.

- Do not twist or bend at the waist.
- You may not be able to lift items of a certain weight. Your medical team will advise you about lifting.
- You may experience constipation. Drink plenty of water, include fiber in your diet, and walk to assist in preventing constipation.
- Use slip-on shoes at home to minimize bending at the waist.
- Use ergonomic chairs, back supports and good posture as you focus on recovery.
- Use your smartphone’s alarm to remind you of your medicine schedule.
- For the first couple of days, limit visitors so you can rest. You may wish to use video conferencing to “visit” with others during this time.
- Use the camera function of your smart phone to take a picture of your incision, especially if you believe it needs to be checked. A daily picture will be valuable in diagnosing a possible surgical site infection.
- The person who changes your dressing should first wash and scrub his/her hands and arms up to the elbow. Every effort should be used to keep the incision area germ free.
- Snack on fruits and vegetables to provide good nutrition which will speed healing.
- Wear comfortable clothing.
- Use ice on the incision for pain control.
- If you have muscle spasms, use heat to relax the muscles.
At Back Pain Centers of America and Titan Spine, it is our desire to help you live your best life. This e-book was created with you in mind as you consider the critical factors involved in spine surgery. We wish to encourage you, the patient, to get involved in your healthcare decisions and believe this resource will help you set the foundation for a successful surgical experience.

For those patients who choose minimally-invasive spinal surgery, statistics show lower rates of complications, less postoperative pain, and shorter duration of hospital stay. However, there are situations in which you may need spinal fusion surgery. For that reason, Titan Spine was invited to participate in this educational resource due to their award winning nanoLOCK® surface technology that has proven to help patients heal faster. Details about this type of surgery may be seen in the Sponsored Content sections of the book.

Finally, we hope that your experience is one that causes you to find pain relief and get back to life’s activities such as those David from Alliston, Ontario has experienced.

“I Got Relief From My Back Pain! I was back golfing in 3 weeks. BPC is the first call I would make if I had a problem with my back.”

David P.
Alliston, Ontario
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Three Common Spine Surgeries

This Spine E-Book will examine and demonstrate three common spine surgical plans. By doing so, you, the patient, are exposed to spinal anatomy and basic spinal correction concepts. However, each will have unique attributes that should be discussed with your physician for a customized surgical plan. This e-book, therefore, is not to be considered in any manner a form of medical advice, but should, instead, provide information to help the patient understand more fully the variety of options available for pain relief. The following three common spine are:

- Anterior Cervical Discectomy and Fusion
- Lumbar Laminectomy for Spinal Stenosis
- Transforaminal Lumbar Interbody Fusion
A. Anterior Cervical Discectomy and Fusion
B. Lumbar Laminectomy for Spinal Stenosis
C. Transforaminal Lumbar Interbody Fusion
F. Footnotes
Anterior Cervical Discectomy and Fusion (Intervertebral Spacer)

If you have experienced pain spreading from your neck and down one or both arms, it is there to let you know that changes are taking place in your back. The feeling of a “pinched” nerve is exactly what is happening when the nerve no longer has its normal amount of space and is being compressed. This may be due to disease or an injury and is caused by a portion of the disc bulging out of its space and putting pressure on the nerve.

Each bone (vertebra) in the spinal column was designed to have a space and cushioning between it and the next bone so that the “shock” of movement is minimized and movement can happen pain-free. However, when this space becomes smaller due to degenerative disease or injury, a solution to restore that space between the bones to its original height is necessary.

Anterior Cervical Discectomy and Fusion is the surgical procedure that removes a herniated or diseased disc and relieves neck and radiating arm pain caused by parts of the disc pressing on nerve roots. Many patients also experience weakness or numbness in the arm or hand and a diseased or herniated disc shows on the imaging.

Because the pain originates in the neck or cervical area, it is corrected by making a small incision across the front of the neck so that the surgeon can easily remove the damaged disc. Into the same place, the surgeon will insert a vertebral spacer which has bone graft filled inside it. On the outside (front) of the spine, he will then attach a metal plate to hold everything in place while the healing takes place. During recovery, the vertebra grow together (or “fuse”) and provides stability in that area of the spine.
Many patients are able to walk out of the surgery center on the same day and may return to work 3-6 weeks afterwards. Timelines for recovery, however, are patient specific and a variety of factors must be considered. Your doctor will explain your customized procedure, recovery and rehabilitation schedule that will be specific to your situation. He is your best source of answers to your questions.

For more information, visit BackPainCenters.com/Videos
Lumbar Laminectomy for Spinal Stenosis

Spinal stenosis is the narrowing of the space inside the spinal column. There are many reasons for this space to narrow, but a common reason has to do with degenerative changes that occur in the lower back which causes the cushioning between the bones to wear down. Eventually, the bones get closer to each other and bone spurs form and grow into the spinal canal, taking up some of the space that belongs to the nerve. Because the nerve is compressed, pain is experienced to alert you to the changes taking place within the spine.

If you have received a diagnosis of spinal stenosis and have tried various treatments to alleviate the pain and accompanying symptoms, it may be time to consider surgery to correct the underlying problem. While there are several surgical procedures that can correct spinal stenosis, the severity of the stenosis and the type of disease that caused it will determine the surgery that is needed for your correction. For this e-book purpose, the examination of lumbar laminectomy will be discussed.

Lumbar laminectomy is a common surgical procedure used to alleviate pain and weakness in the lower back and legs. This surgery is the removal of a portion of the thin, bony covering that is found over the back of the vertebra, called the lamina. If bone spurs and ligament tissue are present, they will be removed in an effort to restore the space within the canal so the nerve is no longer compressed. By taking the pressure off the nerve, the cause of pain and weakness is no longer present for the patient.
Minimally invasive spine surgery (MISS) may be a consideration for the lumbar laminectomy procedure rather than traditional open-back surgery. If this is the case, there are several benefits:

- Less blood loss
- Smaller incision
- Less trauma to the muscles – MISS moves the soft tissue and muscles out of the way rather than cutting them
- Less pain after the operation
- Less need for long-term pain killers
- Less risk of infection
- Faster recovery – patients usually go home the same day and recover at home
The lumbar laminectomy is made with a tiny incision over the spine at the precise point of disease or injury. Long, thin, tubes are placed in the incision and the soft tissue and muscle are moved aside for easier viewing of the lamina. A portion of the lamina is cut and removed along with any bony protrusions or portions of the thickened ligament that is contributing to the problem. The surgeon uses a special microscope and camera to make sure the spinal nerve has adequate room and is no longer compressed and able to cause painful symptoms. When the long tubes are removed, the soft tissue and muscles fall back into place, allowing for a quicker and less painful recovery.

For more information, visit BackPainCenters.com/Videos
TLIF: Transforaminal Lumbar Interbody Fusion

The Transforaminal Lumbar Interbody Fusion (TLIF) surgical procedure is a specific surgery that fuses both the front and the back of a small section of the spine. The surgeon accomplishes this by operating on the patient’s back which he/she calls a posterior approach.

There are many options available to the surgeon due to technological advancements, and he/she will explain which one is best for your particular situation. Spinal fusion from the front of the body is called the “anterior” approach, and that incision is located in the lower abdomen area. The “posterior” approach is when the fusion is done from your back. A “lateral” approach is performed from your side.

A “transforaminal” fusion (TLIF) which we are discussing in this e-book is completed from the back but fuses both the front and the back section of the spine. The surgeon may use an implant and screws for the TLIF to securely hold the spine in place. This allows quicker healing and the patient to begin moving earlier during the recovery period.

If you have been diagnosed with a disease or injury that necessitates spinal fusion, this surgery connects two or more vertebrae together permanently. Movement between the fused bones (vertebrae) in your back will no longer be possible, However, because the spine has 33 vertebrae in the spinal column, the two or more fused vertebrae will not keep you from moving; instead, you will learn to move differently.
A spinal fusion will take longer to heal than other surgeries because it takes longer for the bones to fuse together. However, the pain will gradually improve. As you are taught how to move in different ways with the new fusion, your comfort level will improve quickly as the healing process continues.

There are many reasons why your spinal surgeon may recommend spinal fusion as an option, and a few of those reasons may include broken vertebrae, spinal deformities, spinal weakness, degenerative disc disease, spondylolisthesis or a herniated disk. There are also different techniques and methods of spinal fusion that are dependent upon the specific problem, its severity and the patient’s circumstances. Your spine surgeon will explain the specifics of your proposed surgical procedure, and you should feel free to ask him questions until you are able to make an informed decision about having the surgery.

For more information, visit BackPainCenters.com/Videos

2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4016449/


8. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4829395/