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PLANET**

MARCH 2010

# Brain and Spine Health

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## MEDIA PLANET

### BRAIN AND SPINE HEALTH

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# Neurosurgeons Are More Than Brain Surgeons



American Association of Neurological Surgeons



BY DR TROY TIPPETT, A NEUROSURGEON IN PENSACOLA, FLORIDA, AND PRESIDENT OF THE AMERICAN ASSOCIATION OF NEUROLOGICAL SURGEONS.

**N**eurosurgeons are medical specialists who diagnose and treat disorders of the entire nervous system. They undergo six-to-eight years of specialized training following medical school; one of the longest training periods of any medical specialty. After successfully completing this training and after at least two years of medical practice, including passing a written and oral examination, a neurosurgeon can become Board-certified. Certification by the American Board of Neurological Surgery (ABNS) is considered the "gold standard" in the field. The ABNS is the only board authorized by the American Board of Medical Specialties to certify physicians in the field of neurosurgery.

In the United States, there are more than 6,000 hospitals, with approximately 3,300 actively practicing Board-certified neurosurgeons serving a population of over 303 million people. A large number of Americans will be affected by a neurological condition or disease in their lifetime and require the care of a neurosurgeon.

- An estimated 75 to 85 percent Americans will experience some form of back pain during their lifetime, with an estimated one million undergoing spine surgery annually.
- Stroke is the third leading cause of death in the U.S. Every year about 795,000 people experience a new or recurrent stroke.
- More than 22,070 new cases of brain and other central nervous system tumors are diagnosed every year in the U.S.
- An estimated 12,000 spinal cord injuries occur every year in the U.S.
- An estimated 1.6 million people sustain a traumatic brain injury every year in the U.S.
- Epilepsy and seizures affect about 3 million people in the U.S., and as many as 9 percent of the entire population may experience a seizure at some point in their lives. It is likely that around 50 million people in the world have epilepsy at any given time.

The American Association of Neurological Surgeons (AANS) serves as the voice of neurosurgery and has assumed a leadership role

in educating the media and public about neurosurgery. Most recently, organized neurosurgery was front and center in the healthcare reform debate playing out in Congress; voicing concerns about enacting medical liability reform, protecting patient-centered care and patient choice, and other key issues that were not adequately addressed in the legislation. More in-depth information on healthcare reform and medical liability reform are available in this supplement.

On behalf of the AANS, I hope this supplement will give you a better understanding of the complex and fascinating field of neurosurgery. I urge you to join with us in supporting research through our Neurosurgery and Research Education Foundation. Donations go directly to young researchers working on potential breakthroughs that may one day lead to new treatments and cures for neurological conditions and diseases affecting millions of people in the U.S. and worldwide.

### The American Association of Neurological Surgeons

Founded in 1931 as the Harvey Cushing Society, the American Association of Neurological Surgeons (AANS) is a scientific and educational association with more than 7,600 members worldwide. The AANS is dedicated to advancing the specialty of neurological surgery in order to provide the highest quality of neurosurgical care to the public. All active members of the AANS are certified by the American Board of Neurological Surgery, the Royal College of Physicians and Surgeons (Neurosurgery) of Canada or the Mexican Council of Neurological Surgery, AC. Neurological surgery is the medical specialty concerned with the prevention, diagnosis, treatment and rehabilitation of disorders that affect the entire nervous system, including the spinal column, spinal cord, brain, and peripheral nerves.

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# Brain Tumors: Many Types, Many Treatments

Being diagnosed with a brain tumor is a terrifying prospect, something many of us would prefer not to imagine. Indeed, since the brain is such a complex and crucial organ, even a tiny tumor can cause seizures, headaches, nausea, and changes in the personality or senses.

But whether we choose to think about it or not, over 18,000 Americans will be diagnosed with brain tumors this year. These patients can benefit from a host of treatments developed over the past few decades and, in many cases, can have a good outcome.

"In fact, the term 'brain tumor' is meaningless," says Maciej S. Lesniak, MD, associate professor of surgery, director of Neurosurgical Oncology and director of the Brain Tumor Center at the University of Chicago Medical Center. "There are

over 100 different varieties of brain tumors. It can be misleading and maybe even traumatic to people to hear they have a brain tumor. They think of a horrible outcome."

These many types of tumors fall into two general categories, says Bakhtiar Yamini, MD, assistant professor of surgery, neurosurgeon, and an expert on brain tumors at the University of Chicago Medical Center: primary brain tumors, which form in the brain; and metastatic brain tumors, which form somewhere else in the body and travel to the brain. "Either way,"

Dr. Yamini says, "when that happens the patient's life expectancy is usually very short, so trying to find ways to treat that is a pretty important thing."

But a horrible outcome is not inevitable. Usually a tumor develops when the genes of a cell are damaged, either through a birth defect or by an environmental cause. If the damaged genes are ones that regulate cell division and growth or that fix other damaged genes, the cell can start to grow and multiply like a snowball rolling down a hill, out of control. The mass of tissue that develops is the tumor.

"The important thing to stress is that even with the worst kinds of tumors"—for instance, astrocytomas like the one that killed Senator Ted Kennedy last year—"we have made tremendous strides and therapies in the last 15 years that

actually make tumors much more treatable," Dr. Lesniak says. "I would add an element of optimism."

The three main tools for treating a brain tumor are surgery, chemotherapy and radiation. All three have improved dramatically in recent years, becoming amazingly precise. In surgery, tiny microscopes, surgical tools and lasers, along with detailed electromagnetic scans of the brain, have made it possible for doctors to pinpoint tumor growths without damaging healthy brain tissue, which was once a much greater risk in neurosurgery.

Chemotherapy and radiation have also become more focused. Chemotherapy, which only works in about 20 percent of cases, can be delivered specifically to the tumor by a small "wafer" filled with a chemotherapy drug that will seep out into the area of the tumor with fewer body-wide side effects. Radiation can now be delivered through a helmet with some 200 holes in it to direct the beams precisely at the tumor. After a tumor is irradiated, it begins to shrink gradually over several months.

In cases where all these treatments have failed, there are new developments in gene therapy and immunotherapy. Gene therapy involves replacing part of a cell's DNA to kill cancer cells. Immunotherapy stimulates a patient's own immune system to fight harder against a cancer.

Patients with such resistant tumors often change from a smaller hospital to a major research hospital like the University of Chicago Medical Center. "We get people who have been treated everywhere else, not only in the city but throughout the country or even around the world," says Dr. Lesniak.

"These are cases where either they were treated incorrectly for the wrong tumor, or they were treated correctly and for whatever reason the tumor keeps growing. We have access to therapies that can't be done elsewhere"—often thanks to research grants awarded by the National Institutes of Health or other sources. With over 100 types of tumors, it often pays to visit a facility with experience using over 100 different types of treatment.



Issam A. Awad, MD  
Director of Neurovascular Surgery

*"There is an incredible legacy in neurosurgery at the University of Chicago Medical Center that goes back to the 1920s... a lot of the innovations over the years in vascular neurosurgery happened here."*

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# Latest Advances In Brain Surgery Are Non-Invasive And Precise

Most people have particular preconceptions about neurosurgery: it involves drilling or cutting into the skull and using scalpels and other small tools to correct a neurological illness or disorder. But as technology advances, this notion is becoming less common.

**"A** common misconception people have is that neurosurgery always means a hole in the head and a knife," says Mark Symons, a senior vice president for Elekta, a world-leading company that develops significant innovations and clinical solutions for treating cancer and brain disorders.

In fact, new methods of neurosurgery, that don't require cutting, are proving more effective to improve the quality of life for the patient. "Actually, 'knife' is a bit of a misnomer," says Dr. Jeffrey D. Klopfenstein, a neurosurgeon at the Illinois Neurological Institute and OSF Saint Francis Medical Center in Peoria, which has been using the Gamma Knife for nine years and installed the latest and most advanced Gamma Knife model, Perfexion, in February 2008. "There's no knife involved, and Gamma Knife therapy doesn't carry



any of the implicit risks that any open surgery has." Plus, "the patient gets to go home the same day."

One example of an important advancement in this field is in the treatment for metastases and tumors in brain. Many patients suffering from these conditions today undergo a completely non-invasive treatment called stereotactic radiosurgery, in which the tumor is targeted with a very precisely aimed radiation dose. Stereotactic radiosurgery uses the latest in three-

dimensional imaging ("stereos" is Greek for "three-dimensional") to locate and diagnose the tumor.

Leksell Gamma Knife, invented and manufactured by Elekta, is the most precise and widely used form of stereotactic radiosurgery, and has treated over 600,000 patients worldwide. In Gamma Knife surgery, three-dimensional MRI and CT scan images are used to locate the tumor and plan its treatment. Then, the machine aims hundreds to several thousand tiny beams of radiation at the target from directions all around the head. None of these individual beams is strong enough in itself to damage the tissue it flows through, but when they all converge at the tumor, the additive dose effect is much higher than that used in a traditional radiation therapy session—often it is enough to kill the cancer cells in a single treatment session.

For some types of neurosurgical problems, conventional surgery remains the best treatment, but for those who are able to avoid the knife, they may be able to return to normal life that much more quickly thanks to recent leaps in technology.

# Health Care Reform: A Surgeon's Perspective

**O**ne might think of the American health care system as a giant brain sending patients and treatments and medicine and money around like electrical signals from neuron to neuron. But most people agree that this brain needs some surgery. Millions of Americans are without coverage, costs are rising, and lawsuits distort the pure practice of medicine.

If a neurosurgeon could take a scalpel to this brain, what would he do? "There's no question we need reform," says Dr. Troy Tippet, a neurosurgeon in Pensacola, Florida, and president of the American Association of Neurological Surgeons. "I'm not sure the urgency is there to have a rapid rush to pass it right now." He would rather treat the health care system with a scalpel than a kitchen knife.

When it happens, Dr. Tippet would like to see a reorganization according to certain priorities. First of all, he says, "It's extremely important that we keep the patient-doctor relationship sacrosanct." He opposes any reform that "puts someone in the room between the doctor and patient." This includes the Independent Payment Advisory Board, included in the current Senate health care reform bill, which would recommend spending reductions for Medicare treatments if expenses continue to rise as expected. This provision could limit treatment options for future patients. Dr. Tippet also opposes a so-called public option or an expansion of Medicaid, "already an underfunded instrument that does not provide access" to many treatments.

One thing he would implant in the ideal health care system is medical liability reform, in particular a measure to limit non-economic damages—that is, "pain and suffering" awards—in medical malpractice lawsuits. The unpredictable and often extremely high courtroom awards in such lawsuits lead to prohibitive insurance rates and to doctors practicing defensive medicine, performing unnecessary tests and procedures (some of them with their own risks) to protect themselves against being sued. Texas and California have already enacted such reforms.

One other aspect that neurosurgeons in particular would like to see as the health care system is reformed is not to lose focus on specialty fields like neurosurgery. Primary care medicine has assumed great importance in the reform debate—and rightly so—but, as Dr. Tippet says, "Our specialty care is what sets us apart as a nation." We need to make sure, he says, that we continue to support specialty care with residency spots and ample funding.

## Brain surgery

## without the knife

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# Brain and Spinal Cord Injuries—A Serious Threat

In the blockbuster movie *Avatar*, Corporal Jake Sully agrees to be cryogenically frozen and sent to the planet Pandora in order to earn enough money to get the use of his legs back. He has been in a wheelchair since he had a “hole blown through the middle of my life” in the Marines.

Of course, the movie takes place in the year 2154, in a time of cryogenics and intergalactic travel. Is there any hope for veterans and others with spinal cord injuries today?

Because neurons, or nerve cells, do not repair or regenerate themselves in the brain and spinal cord, it remains “difficult to treat often devastating injuries,” observes Dr. Julian Lin, a board-certified pediatric neurosurgeon with the Illinois Neurological Institute and program. “It has (been) shown time and time again that the best treatment is avoidance or prevention; seat belt laws have been one factor that has dramatically reduced these injuries. I think we should be looking seriously at helmet laws and ATV laws” as well.



What surgeons can do after an injury is to respond quickly to limit the extent of a brain or spinal cord injury. Such injuries are often exacerbated by swelling in the injured area that damages more cells. In light of this, Dr. Lin explains, “the new trend in the surgical management of head and spinal cord injury is to intervene earlier than in the past.”

The primary intervention surgeons use is “decompression,” or making more room for the injured nerve tissue in the direct aftermath of the injury. For a brain injury, this can include temporarily removing a bone-flap from the skull to relieve pressure. For a spinal cord injury, it can include removing tissue from ligaments, vertebrae or the discs between vertebrae to make room for the inflamed spinal cord.

Research continues into drugs, cell transplants and stem cells that might spark some nerve regeneration, hopefully sooner than 2154. For now, the fact remains that an ounce of prevention is worth many pounds of cure. Over 10,000 people suffer spinal cord injuries each year, and 1.5 million suffer some traumatic brain injury each year. Men are three times more likely than women to suffer these injuries, which largely occur from car and motorcycle accidents, diving and other sports accidents, and gunshot wounds. Seat belts, helmets and caution are the best treatments, at least while we are still in this galaxy.

## Acting Fast To Treat A Stroke

Stroke is the third leading cause of death in the United States, and the leading cause of long-term disability. But fast treatment can minimize the effects of stroke. The best way to improve the chances of a healthy recovery is to learn the warning signs and call 911 immediately if you or a loved one experiences a stroke.

A stroke is sometimes called a “brain attack.” Blood supply to a part of the brain is cut off when a blood vessel either is blocked by a clot or, less frequently, bursts. Brain cells begin dying within minutes. Symptoms to watch for include sudden dizziness; trouble walking, speaking or seeing; paralysis or numbness on one side of the body or a sudden severe headache.

“When a stroke occurs, every second counts,” says Loyola University Health System stroke specialist Dr. José Biller. “Time is brain. The faster we can diagnose and treat patients, the better the outcome.” Dr. Biller is chairman of the Department of Neurology at Loyola University Chicago Stritch School of Medicine.

If the stroke is caused by a clot and the patient arrives at the hospital in time, the stroke often can be treated with a clot-busting drug. In certain cases, a minimally invasive surgical procedure also can stop a stroke in its tracks. A surgeon inserts a tiny catheter into an artery in the leg, guides it up to the blockage and suctions out the clot, restoring blood flow.



A “mini stroke,” known as a transient ischemic attack (TIA), occurs when symptoms are temporary. A TIA is caused by a temporary cutoff of blood flow, and is a warning sign for a possible full-blown stroke. Each year, 200,000 Americans experience TIAs.

In addition to its award-winning Stroke Center, Loyola University Health System operates a dedicated TIA clinic that offers multidisciplinary expertise 24 hours a day, seven days a week. One-third of all people who experience a TIA will later suffer a stroke, so anyone who experiences a TIA should see a specialist immediately.

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Dr. Daniel Fassett  
Neurosurgeon



# Pain Is A Problem

Everyone experiences pain. Unfortunately pain is unavoidable and over 10 million Americans suffer from chronic, debilitating pain. Anyone who has had pain knows that it can be a life-altering problem. Pain can make even the simplest daily activities like walking, lifting, or bending difficult or even impossible.

Many people think that back pain discomfort is an unavoidable part of daily life. Sometimes pain is merely nagging or annoying and over-the-counter medication along with exercise is enough to bring relief. In a majority of patients this works, but in some cases, it does not. For this type of pain, an interventional pain physician might be your best choice.

Interventional pain management is the discipline of medicine devoted to the diagnosis and

treatment of pain and related disorders with the application of interventional techniques in managing subacute, chronic, persistent, and intractable pain, independently or in conjunction with other modalities of treatment. Interventional pain treatments are simple, usually outpatient, well-tolerated procedures used to help pain sufferers reduce pain while avoiding more invasive, risky, and aggressive surgery. This allows patients to recover faster so that they may return to work and

The American Society of Interventional Pain Physicians (ASIPP) is a medical society with a mission "to promote the development and practice of safe, high-quality, cost-effective interventional pain management techniques for the diagnosis and treatment of pain and related disorders, and to ensure patient access to these interventions." ASIPP publishes guidelines that

carefully review all the relevant medical literature on interventional pain management therapies to assist physicians, insurance carriers and other interested parties.



resume normal, daily activities sooner, improving functionality and quality of life.

Problems commonly treated in pain management centers include, but are not limited to: low back pain, neck pain, headaches, cancer pain, shingles, sympathetic dystrophy nerve problems, and occasionally, arthritis. Pain management centers are directed by physicians who specialize in interventional pain management generally with a staff of nurses, therapists and medical professionals who are experts in the management of painful disorders. These centers, in office, ambulatory surgery center or hospital settings, generally offer a variety of treatments for all types of pain conditions.

Pain specialists come from various primary specialties with advanced training and expertise. They are mainly anesthesiologists, physical medical rehabilitation specialists and neurologists. However, they may include neurosurgeons, orthopedic surgeons and interventional radiologists.

There are several different certification processes utilized in Pain Management. The most intensive and thorough examination process today is offered by the American Board of Medical Specialties approved Boards (Anesthesiology, Physiatry, and Neurology) and the American Board of Interventional Pain Physicians (ABIPP).

# Healing Touch

A massage for a pain sufferer doesn't start with the touch – it starts with discussion. Bobbe Bermann, director of education at the Cortiva Institute, starts by exploring her clients' medical history, as well as trying to get a full sense of their daily lives.

"I want to get a complete picture of who this individual is. I listen to what they're saying, but also notice their nonverbal cues, like how a person sits in front of me and how they walk into my treatment room," Bermann says.

Bermann also wants to hear details of clients' discomfort. She says it's good to think ahead of time about your level of pain or if it prevents you from living your life. It's also good to express how constant the pain is, or when it comes and goes. For chronic pain sufferers, she suggests keeping a pain diary.

"I truly believe pain and discomfort don't just happen overnight, except if you had an accident or surgery. I think that most things in our lives have been laying dormant and manifesting over a period of time," Bermann says. "So why does it choose this day to rear its ugly head? It could be an increased stress level, or daily actions finally turning into pain."

Bermann explains that our connective tissue, which surrounds our



muscles, can get matted or glued itself to other tissue if it doesn't have proper rest, diet, or stretching. This can create a lack of circulation to the tissue.

"When you work out, your muscles shorten, and if you don't stretch after the activity, the body doesn't remember the other length of the muscle. The shortened muscle fibers can adhere and mat next to each other, causing a decrease in movement potential. If you stay on this path, you'll eventually have tissue that is screaming at you," Bermann says.

Bermann says clients come to her in a variety of ways; sometimes they are referred from their doctors; sometimes they've tried a variety of other treatments and are still in pain and want to try something new.

"I'm the kind of massage therapist who is eclectic. I find whatever works with their tissue and how it responds to my touch. I like to choose things that are easy for their bodies, because ultimately, their bodies have to recover," Bermann says.



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# Pain Free Without Surgery

In between a primary care physician and a spinal surgeon is a level of care to treat pain using minimally invasive procedures – it's a specialty so new, Dr. John Hong, an interventional pain specialist, says that a lot of patients are pleasantly surprised to find it.

"Most people don't like surgery," he says. "But a lot of people aren't aware that this specialty exists."

Hong's office typically works with chronic pain. He says when patients get to him, they've typically gone through some physical therapy and have tried medication. He first makes sure a patient's pain medications are optimized.

If he's going to perform an interventional treatment, he says he first tries to find the source of the pain, whether it's arthritis in the back, a torn disc, or pinched nerves.

One such treatment is an epidural cortisone injection into the spine, which Hong says can help with problems like a herniated disc.

If a patient has arthritis pain in the spine, Hong says he can help by heating up nerves. "Nerves carry pain sig-



nals. If you have a very painful degenerative joint, I use a special insulated needle and position it along the nerve. We deliver radio frequency to that area, and heat up the tip of the needle, which destroys the nerve," Hong says. "That can interrupt the pain transmission."

Hong says this procedure only takes a half-hour to do, and patients can feel relief from four months to a year or two.

Finally, one of Hong's most advanced techniques is called spinal cord stimulation; he says he uses it for

patients who have a chronic type of nerve pain that might be traveling in the arms and legs.

"This is a technology that's been around for decades. We place a small stimulating electrode alongside the spinal cord, and it sends a low-level electrical impulse that can block pain signals from reaching the brain," Hong says.

He says patients who benefit from this have undergone surgery but continue to have pain; he says it's an effective option for those who don't want to have a second surgery.

## Living with An Aneurysm

In 1988, then-Senator Joe Biden underwent surgery twice to correct a ballooning of vital arteries in his brain—known as a brain aneurysm. More than twenty years later, at the age of 67, he is the healthy vice president of the United States. How did he survive such a serious and acute condition?

Imagine that an artery is made of chewing gum. An aneurysm occurs when the blood vessel wall thins and a bubble appears in the side. Many people confuse an aneurysm with a subarachnoid hemorrhage (SAH), which is what happens when the bubble pops and the artery begins bleeding into the brain. Biden's aneurysm had just started bleeding when a doctor caught it and Biden went in for surgery.

However, "most aneurysms do not bleed," says Dr. Fady T. Charbel, head of the department of neurosurgery at the University of Illinois Medical Center in Chicago, and an expert on brain aneurysms. Up to 6 percent of the American population may be living with an unruptured aneurysm, according to the American Association of Neurological Surgeons. The ideal situation, of course, is to discover a potentially ruptured aneurysm before it does hemorrhage.

Aneurysms develop from inborn tendencies in a patient's family tree, and also from wear and tear on veins and arteries. People who have a family history of aneurysms, those with high blood pressure, or those who smoke cigarettes are more likely to have an aneurysm and might consider being screened for them. Patients who have already had an aneurysm should certainly be alert for more. Some symptoms of an aneurysm are severe localized headaches, blurred or double vision, or numbness.

With the care of an experienced physician and emphasis on early aneurysm detection, patients can live long, productive lives just as Vice President Biden has.



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## Unblocking Energy To Alleviate The Pain

When you go to see Dr. Ed Lamadrid, the chief operating officer and campus director of the Pacific College of Oriental Medicine, you'll get a very different assessment than a traditional doctor.

"Chinese medicine 2,000-3,000 years ago didn't have access to MRIs or X-rays," Lamadrid says. "We look at symptoms, do an interview, and look at the pulse and the tongue."

The tongue, he explains, is mapped out where he can see on its surface things are happening within the body. He also feels for nine different pulses in his patients, all in the name of checking a patient's qi, or energy.

"It's like your body is a car running on electricity and fuel. Fuel would be eating, drinking, and the air we're breathing. But our electrical system is our biochemical system, and part of that is qi," he says.

He explains that when someone feels pain, it usually reflects a blockage of energy, which he calls stagnation. When he inserts needles, he can redirect the blocked energy.

Lamadrid says that the most common reasons people come in for pain are headaches and back pain. While he says that acupuncture can work with all pain, the results vary between patients. He says some feel 100% better after one session, and some may see a more gradual reduction in pain.



In terms of back pain, he says muscle strain is easier to treat through acupuncture than herniated discs, but that it also depends on the amount of pain.

He gives an example of a 41-year-old female patient, who worked at a deli and was on her feet all day long. She also played softball on the weekends. She was diagnosed with a herniated disc, but it wasn't bad enough to require surgery. Her friends urged her to try acupuncture.

After the first visit, Lamadrid says she was amazed that her pain was reduced by 50%. She continued going in once a week for three weeks, and by the end of the third week, the pain was gone. She started backing herself off the pain medication, and now she comes in around once a year, or whenever she feels her back tighten.

Lamadrid also can offer Chinese medicine to help with the pain; because there are so many Chinese and American herbs, he says a lot of the formulas are custom-made, especially if the patient is already on medication.

## The Line Between Treatment/Addiction

Dr. Marv Seppala, chief medical officer of Hazelden, says that the statistics of Americans' addiction to pain medicine speak for themselves.

From 1999-2002, overdoses on prescribed opiates increased 91 percent, and the U.S. currently consumes 80 percent of the world's opiate supply. Finally, from 1992-2003, the number of people abusing controlled prescription drugs grew 81 percent.

With the truth in the numbers, Seppala looks at what's causing the statistics.

"Opiate pain medications are extremely addictive as a class," he says. "You develop a tolerance to them and can increase your dose." He says one patient had built enough of a tolerance to take 62-100 Vicodins a day.

But with so many patients treating chronic pain, how can you monitor the difference between finding relief and becoming addicted?

"It's best for the individual to work with their physician to be really aware for the potential of addiction," Seppala says. "The primary risk factor is genetic predisposition. Other factors include a history of trauma, if a person is under great stress, or if they are undergoing psychological problems."

He says that if you are prescribed opiates, it's important to know that anyone who takes the medicine will develop a tolerance, and if the pain remains, you'll need to increase the dose. He also adds that depending on the cause, such as injury or surgery, the pain might increase, also causing a larger dose. He says this doesn't indicate addiction.

He also says if patients slightly increase their dose on days they're in more pain, that this doesn't mean you're addicted.

Seppala says that someone who has slipped into addiction will first really like the feeling from the medicine. They also may start to visit other doctors, whether they need to or not.

"I had a patient who saw five doctors a month. None of them thought she had a problem, but none of them knew she was seeing four other doctors," Seppala says.

He says that if you try to hide what you're using from your family and friends, or convincing yourself that you're doing it for your pain, you could be addicted. He also says to pay attention if your family is concerned or you're starting to miss work. Once patients recognize that they are addicted, Seppala says that he emphasizes to his patients that detox is not enough, that there will be therapy, education, as well as the options of non-addictive pain medicine, massage, and acupuncture.



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# Back Pain: Causes And Treatments

One-half of all Americans complain of having back pain each year, according to the American Chiropractic Association, and back pain is the top reason that people miss work.

Not only is back pain widespread, the variations of severity and symptoms can make it tricky to diagnose.

Dr. Purnendu Gupta, the director of the University of Chicago Spine Center at Weiss Memorial Hospital, says doctors start by asking patients about any recent increase in activity.

"Lifting can be the most common thing – bending and twisting. People can also have an onset of back pain after they moved some furniture – I can't tell you how many times I hear that story," Gupta says.

So when should someone in pain see a doctor? Gupta says if the pain is severe, or if you feel incapacitated

and can't get around, you should see your primary care physician.

He adds that it is important for people with a history of cancer to go to their physicians sooner.

"These patients don't want to ignore significant back pain, because this can be a sign of progression of some types of cancer to the spine," he says.

Gupta separates out a patient's pain symptoms in terms of pain in the back or leg. If a patient primarily feels only back pain, an event probably caused the injury, which might be a strain or a sprain.

"What's alarming to me is when people have pain shooting down

their legs," he says. "What could be causing that is a pinched nerve."

Gupta says you can feel the leg pain in the back or front of your thigh, in the buttocks area, or down your calves. He also says that spasms indicate the pain is more significant. He'll start patients on anti-inflammatories, which, coupled with rest, help most patients.

"If the anti-inflammatories aren't enough, people will acutely use muscle relaxants. I'm personally not one in favor of using muscle relaxants on a long-term basis," Gupta says. "They are only really meant to be used for several days."

If the pain persists, Gupta says he might recommend an MRI to further investigate. If it's a herniated disc, a person might have to take more steps, though Gupta says he always tells his patients that data shows that most disc herniations improve over time.

He adds that herniated discs can be wildly different in the symptoms they cause – someone with a massive disc herniation can have minimal symptoms, and people with smaller herniations can be in severe pain.

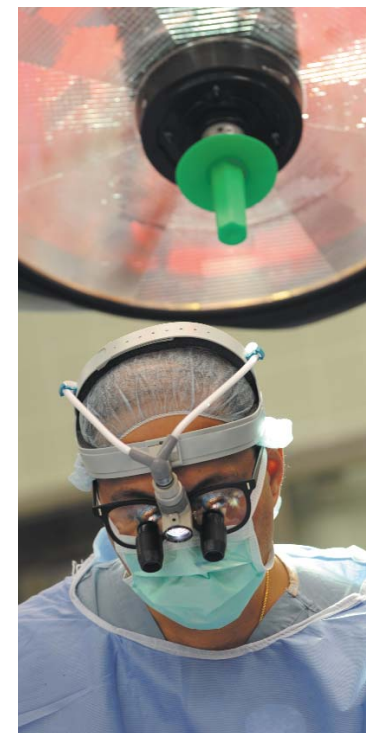
Gupta says he is slow to recommend surgery, and that hypothetically 90 out of 100 people who have disc herniations will get better without surgery. Of the remaining 10, he says usually less than half will go on to require surgery.

"People are always fearful of spine surgery, and I always tell them that most problems related to the spine are handled non-operatively. I'm very patient giving people an opportunity to get better, and tell them they should exhaust the non-operative measures before they proceed to surgical intervention," he says.

When Gupta does perform a procedure, he says it's directed to the exact problem. If a patient has the indications of a disc herniation, the lower back pain and leg pain have persisted, and the MRI correlates with the physical exam, then he says that patient is a candidate for a microdiscectomy, where a portion of the disc is removed.

There are plenty of ways that you can help prevent back pain, too, Gupta says. He recommends aerobic fitness to his patients.

"You don't have to run a marathon,



but even walking 20 to 30 minutes three times a week goes a long way to help strengthen the spinal musculature," he says. "Also, watch what you do routinely, like sitting at your desk. You want to sit with the right posture to avoid developing back pain."

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**DR PURNENDU  
GUPTA, MD**

Director of the University of Chicago Spine Center at Weiss Memorial Hospital and Associate Professor of Surgery at

University of Chicago

**Q:** I've been diagnosed with scoliosis as an adult. Is this possible if I never had it as a child?

**A:** While most of us think of scoliosis as a condition that develops and progresses during adolescence, adults can also develop curvature of the spine. In fact, adults over age 50 have a 5 to 10 percent chance of developing adult degenerative scoliosis. Some of these adults may have had a mild degree of scoliosis, which didn't require treatment as adolescents.

Later in life, the onset of arthritis in the spine can occur asymmetrically in the discs and joints of the spine, leading to the development and/or progression of the scoliosis to the point where medical attention is needed.

Adult degenerative scoliosis patients often have back pain and may develop difficulty sitting or standing. To diagnose the condition in an adult, a patient's back needs to be examined as well as the patient's hip and shoulder alignment. In addition, X-rays of the spinal region are taken to get a clear picture of a patient's condition. Additional exams are recommended every five to 10 years to follow the scoliosis. Treatment will depend on the severity of the curvature, but may involve medication for pain and inflammation, physical therapy and, on occasion, pain management.

While not required often for adults, surgery to address scoliosis may be recommended for those whose curvature has significantly worsened over time—increasing more than 60 degrees—or whose pain is worsening despite treatments. The goal of surgery is to restore a patient's quality of life to prevent further progression of the scoliosis and of course to correct the scoliosis.



**BOBBE BERMAN**

Director of Education  
Cortiva Institute –  
Chicago

**Q:** Is massage a growing pain relief alternative?

**A:** Aches, pain, strains, pulls, sprains, fatigue are all results of the work we put in to improve our health and well-being. This pain can be caused by poor workout form, overexertion or repetitive stress, but the way we deal with the pain is changing. While most people will reach for ibuprofen or other pain relievers, one of the best methods is both the oldest pain relief known to man and the fastest growing – using touch, or massage therapy, to relieve pain.

In fact, massage can be more effective than medicine for some pain relief. Massage will most always provide a decrease in pain and discomfort in that it provides the human component of healing touch and engages the parasympathetic nervous system, the mechanism that allows the body to rest and restore. Medicating pain is typically a reactive treatment while massage offers a proactive, preventive approach.

Massage is becoming increasingly recognized as an effective pain management modality by both consumers and the traditional medical community.

But all touch is not equal. For the best results from a massage, seek out a massage therapist who is professionally trained, licensed and a graduate of an accredited program.

Organizations such as Cortiva Institute are making great commitments to give individuals the highest standard of education available for massage therapists. So next time you have that "tweak" or "twinge," why not get a massage?



**SCOTT E. GLASER, MD**

DABIPP, President of Pain Specialists of Greater Chicago, Board of Directors, American Society of Interventional Pain Physicians, Past President, IL

Society of Interventional Pain Physicians

**Q:** How has the interventional pain management field evolved in recent years?

**A:** Please go back and read the introduction by Dr. Manchikanti within the ASIPP article carefully. Pain secondary to osteoarthritis affecting the joints of the spine and multiple other causes is truly an unavoidable aspect of life and is becoming more prevalent in our active population. The statistics are staggering. Fortunately, the specialty of interventional pain management has evolved to meet this challenge. I have personally witnessed the amazing development of interventional pain management over the past two decades to a level that we can now effectively and safely treat these painful syndromes in all patients.

Like many areas of medicine, the development of minimally invasive, targeted therapies have significantly improved our ability to diagnose and treat the causes of pain and do so with much greater safety. This approach to pain is almost identical to the treatment of coronary artery disease and chest pain. Minimally invasive, X-ray guided treatments, target the problem and treat it and improve symptoms and quality of life and, most importantly, help patients avoid invasive and risky surgery. The pain is then controlled with conservative treatment to keep individuals working and active with an improved quality of life.

Interventional pain management has evolved rapidly and substantially. It is important to confirm that the pain management doctor you are being treated by is dedicated to the specialty and not practicing it part time. Dr. Manchikanti lists the certifications that can be utilized to judge a physician's commitment to this new and exciting specialty.



**DR JOHN K. HONG, MD**

Interventional Pain Specialist  
Board Certified in Pain Management, ABA  
Gateway Spine & Pain Physicians, LLC

**Q:** Is pain always just a symptom of another problem?

**A:** Pain may not just be a symptom, but a disease unto itself. Nerves that sense, transmit, and process pain may function abnormally, causing painful signals that act out of control. Our bodies can become "sensitized" to pain, especially when pain continues untreated. Although pain is usually a healthy, protective mechanism, in these situations, the pain no longer serves a useful function and leads to suffering and disability, ultimately preventing a productive, active lifestyle. As an interventional pain specialist, my goal is to accurately and quickly identify and treat the source of pain. Pain in the neck or back that has not improved with conservative treatments such as medications and physical therapy may be treated with interventional pain procedures. These minimally invasive techniques may effectively eliminate or reduce pain and help facilitate a return to normal, healthy function without need for surgery. The use of X-ray guidance to precisely deliver medication, electrical stimulation, or heat energy to misbehaving nerves has revolutionized the field of interventional pain management within the past couple decades. Treating chronic pain, however, rarely involves simple fixes. Usually a carefully balanced combination of medications, therapy, counseling, and interventional procedures are required for the best outcome.

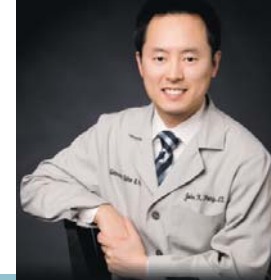


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**DAVID M. FRIM, MD, PHD**  
Professor of Surgery and Pediatrics  
Chief, Section of Neurosurgery  
University of Chicago Medical Center

**Q:** Can a diagnosis of a childhood brain tumor result in a good outcome?

**A:** Yes. While a childhood brain tumor is a frightening prospect, the outlook isn't always bleak. Many tumors can be treated, allowing children to live long and healthy lives.

There are numerous types of brain tumors that occur in children, and brain tumors are one of the most common types of pediatric cancer. Many can be difficult to treat, but many tumors can be successfully treated if found early. These include benign brain and spine tumors caused by genetic diseases like neurofibromatosis and tuberous sclerosis. Neurofibromatosis tumors may or may not require treatment, depending on the severity of symptoms. Promising non-surgical treatments to reduce tumor size for patients with tuberous sclerosis are being studied. One of those treatments is being offered through a clinical trial at Comer Children's Hospital at the University of Chicago.

There are also some brain and spine tumors that can exist benignly for a long time with the right treatment. That treatment can include surgery, chemotherapy, and radiation. And many benign, non-invasive tumors can be effectively removed with surgery alone, especially using state-of-the-art computer-based neuroimaging. When childhood brain tumors are treated aggressively using the latest techniques at an institution with an experienced and advanced pediatric brain tumor program, the outlook can be extremely positive.



**DR. JEFFERY D. KLOPFENSTEIN, MD**  
Neurosurgeon, Illinois Neurological Institute and OSF Saint Francis Medical Center in Peoria, IL

**Q:** What programs and technological advancements are available at the Illinois Neurological Institute for the treatment of stroke?

**A:** With stroke, "time is brain," meaning the more time between the onset of stroke symptoms and the start of treatment, the greater the chance of permanent brain injury. Given this, it's crucial that stroke patients receive the most advanced interventions as quickly as possible. This happens at the Illinois Neurological Institute's Stroke and Cerebrovascular Center, a multidisciplinary organization with fellowship trained physicians who provide cutting edge stroke care.

With 27 affiliate hospitals, the INI Stroke Network is one of the largest in the country and provides centralized, comprehensive care for stroke patients. Network hospitals transfer stroke patients to the INI, located on the campus of OSF Saint Francis Medical Center in Peoria, and one of the busiest stroke hospitals in Illinois with approximately 1,000 stroke admissions per year. This cooperative interaction between hospitals significantly decreases the time it takes for stroke patients to receive treatment and results in superior patient outcomes.

Treatment options range from the use of clot-busting drugs such as tissue plasminogen activator (tPA) and minimally invasive procedures wherein stroke-causing clots are destroyed using small instruments from within the blood vessel such as the Merci Retriever and the Penumbra device to open surgery by our experienced team of surgeons.



**DR. R. LICHTENBAUM, MD**  
Neurosurgeon and Endovascular Neurosurgeon, Resurrection Healthcare and UICMC

**Q:** Do neurosurgeons treat strokes?

**A:** Stroke is a leading cause of death and disability, with 795,000 Americans being affected every year. Strokes may be caused by a blood clot that blocks the normal blood flow to the brain or by a ruptured blood vessel that causes bleeding. Calling 911 for immediate medical attention is necessary to minimize long-term damage. Ideally, the patient will be transported to a certified Primary Stroke Center, where care is proven to be more efficient and effective.

Any unusually severe or sudden headache, slurred speech, weakness of the face, arm or leg, visual loss or imbalance is a sign of a stroke and should prompt an immediate 911 call.

For breaking up clots, the drug tissue plasminogen activator (tPA) is effective but there is a short window, just a few hours, of time that it can be administered. Invasive clot retrieval by an endovascular neurosurgeon will often prevent or minimize permanent brain damage by restoring the normal blood flow.

In cases of sudden bleeding, a neurosurgeon is needed. Emergency surgery may be necessary to remove the blood, and if this occurs from a ruptured aneurysm, surgical clips or metal coils can restore normal blood flow and prevent further damage.



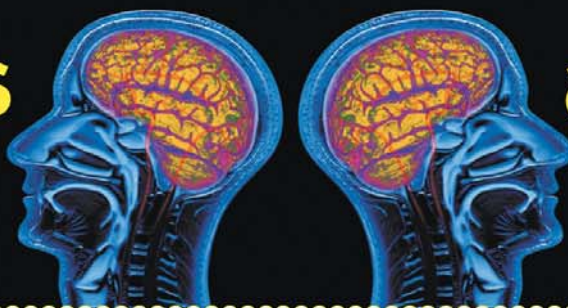
**JEFFREY W. MILLER, MD**  
Medical Director Edward Neurosciences Institute, Assistant Professor Feinberg School of Medicine, Northwestern University, Departments

of Neurological Surgery and Radiology

**Q:** What's the primary message you'd like people to be aware of regarding stroke?

**A:** There is currently a remarkable revolution in stroke treatment and education that, as a physician, is rewarding to be a part of. Until recently, patients with acute stroke were stabilized and observed, with hope for the best. One advance in stroke treatment was FDA approval of intravenous tPA, but a short time window for treatment limits potential candidates. With progress in the technology used in endovascular neurosurgery, devices have been developed to actively remove clot from the brain and reverse the debilitating/deadly effects of cerebral ischemia (stroke). As effective as stroke treatment has become using all methods, it pales in comparison to the difference made by the detection of early risk factors and thus, prevention. It's critical to identify and treat risk factors before becoming an emergency. Always be on the lookout for symptoms indicating the possibility of a future stroke. The major sign is a transient ischemic attack, known as TIA, indicated by stroke-like symptoms for less than 24 hours, commonly resolving in one to two hours. Symptoms of TIA are temporary, but should not be ignored: sudden weakness, difficulty speaking, loss of balance and loss of vision are just a few. Bottom line, there is new hope in the battle against stroke.

two brains

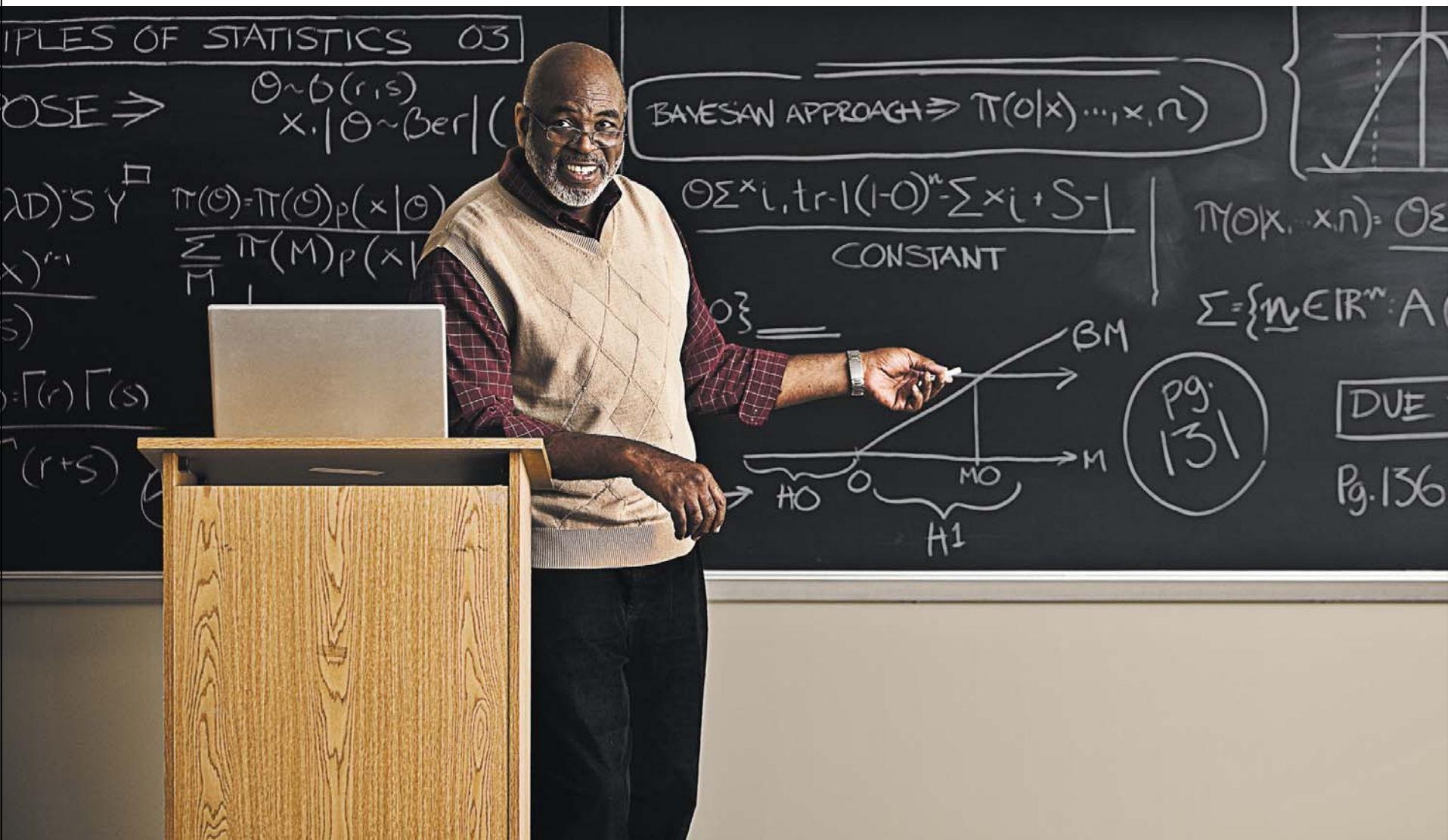


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