

How to  
**relieve** chronic  
pain without  
invasive  
procedures

# SPI NAL HEALTH PROGRAM



*People you can  
Trust for life*



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## **BACK PAIN**

**4** out of **5** people have suffered from back pain at one time during their lives.

# INTRO- DUCTION

**Back pain** is one of the most common and very painful, yet not life-threatening, conditions, with four out of five people having suffered from back pain at one time during their lives. Disability due to back pain has increased over 50% in the last 25 years.<sup>1</sup> For people suffering from this, the most common complaints are physical pain and limitation of motion. Many times, the pain is so severe that people are unable to do even everyday tasks around the home.

Back problems are considered as a musculoskeletal disorder (MSD), which, along with carpal tunnel syndrome, **represent the most common and costly (yet preventable) work injuries**. According to the International Labor Organization, these types of problems currently represent a third of all work-related injuries in industrialized countries.<sup>2</sup> They cause considerable pain and suffering for individuals, represent significant costs for healthcare systems and companies due to missed work and lost productivity, as well as impact the overall economy.

The actual costs of back pain are difficult to calculate because they depend on many factors. They include not only the cost of medical care, but also those absorbed by employers from employees missing work and the consequent losses in productivity. Estimates range from “at least \$50 billion dollars each year,” according to the American Chiropractic Association, to up to \$200 billion dollars a year, according to the American Academy of Orthopedic Surgeons (and this information only includes data from the United States).<sup>3</sup>



In this paper we describe ***the most common types of injuries and problems related to the back*** and treatments that have proven to help alleviate pain.

A very effective one is the Spinal Health Program, which is a healthcare program where neurosurgeons, orthopedists, and physical therapists ***teach patients how to protect their back, alleviate pain, and prevent further injuries.***

<sup>1</sup> Medline Plus <https://medlineplus.gov/backpain.html>

<sup>2</sup> International Labor Organization (ILO) "HealthWISE - Work Improvement in Health Services"

<sup>3</sup> Katz, Jeffrey N. "Lumbar Disc Disorders and Low-Back Pain: Socioeconomic Factors and Consequences." The Journal of Bone and Joint Surgery 88a.2 (2006): 21-24. Web. 26 Aug. 2014.





# WHAT CAUSES BACK PAIN?

Back pain is a problem that is easily recognized, and that can cause a wide range of symptoms and limitations of motion. In the majority of cases, it's not dangerous. It can occur at any place along the spine, the 33 vertebrae that hold and protect the spinal cord that is connected through ligaments, muscles and discs that absorb impact. When a disc becomes compressed, it can become herniated or rupture, putting pressure on the nerves connected to the spine. In addition, it can also cause the growth of extra pieces of bone known as "spurs," which can also put pressure on nerves. Both of these situations can contribute to, or be the cause of, back pain.

Though of course sporting injuries and accidents can cause back pain, sometimes even the most simple movements, like bending down to pick something up off the floor, can have painful consequences. In addition, arthritis, bad posture, obesity, and psychological stress can cause or aggravate back pain. It can also be a direct consequence of an ailment of the internal organs, including kidney stones, kidney infections, blood clots and bone loss.

Although anyone can suffer from back pain, ***research shows that certain conditions and activities can increase your risk of pain and injuries*** and to the back and related muscles.

There are also factors that we cannot change, like **age and gender**. Although back problems can occur at any time, they are most common during the second half of life. Men and women are equally susceptible to suffering back pain, though the problems can vary for different types of work. For example, men many times have herniated discs, and a higher probability of undergoing some type of surgery.<sup>4</sup>

Many times women suffer from back pain during pregnancy, especially during the third trimester. Although the pain usually disappears after birth, it can become chronic. Some of the possible causes include the weakening of abdominal muscles, ligaments that are stretched, and the damage to the lower back due to the weight of carrying the baby.

**Family history** also appears to play an important role in certain back problems, like arthritis and ankylosing spondylitis, which causes a loss of cartilage and calcification of the discs between the vertebrae.

We can't change our genes, age or gender, but there are other factors we can change, or at least correct, so that back pain does not become an impediment or limitation, like including physical movement as part of your daily routine.

There are **jobs and activities** that cause increased back tension. For example, work that involves extensive travel with prolonged periods of time sitting and being exposed to vibrations. Sedentary work in an office also affects the back. It could be



said that almost all work-related activities increase the probability of future back problems unless we improve the mechanics of our bodies by stretching and strengthening the muscles and ligaments to help alleviate symptoms.

There are also **psychological factors** involved that affect physical health, and specifically back pain. Stress, anxiety, and a negative attitude and emotions increase your risk of developing back pain. The reasons for this are not fully understood. Part of the answer can be found in the fact that chronic pain and depression share some of the same biochemical roots.

This means that people with psychological disorders develop more back pain, and also conversely, that people who have chronic back pain are three times more likely to have depression and frequently suffer from anxiety, stress and sleep problems.<sup>5</sup>

## FACTORS

AGE



GENDER



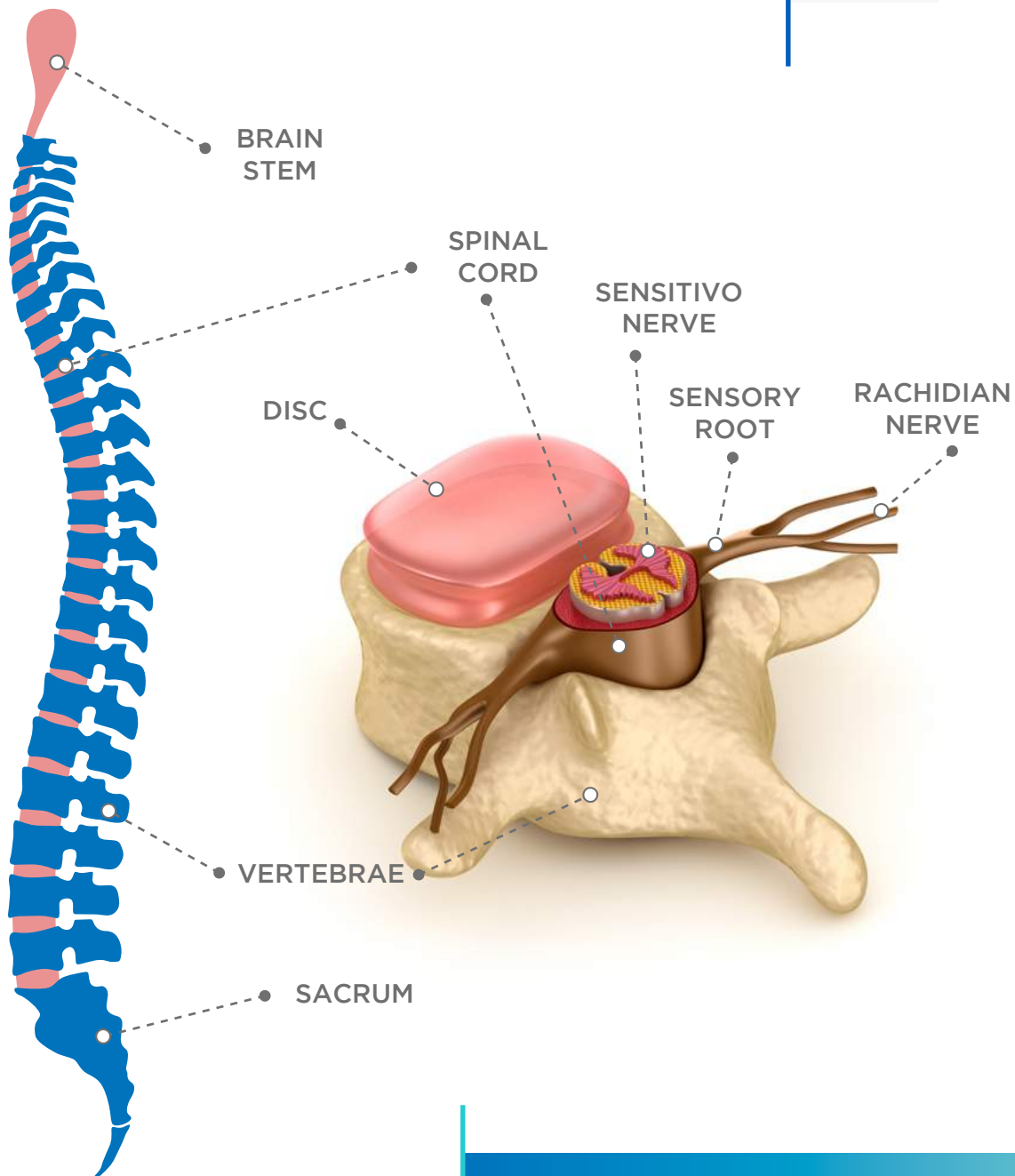
GENES



<sup>4</sup> Harvard Medical School, Special Health Report: "Finding solutions for your aching back"

<sup>5</sup> Centers for Disease Control and Prevention (CDC), "The Prescription of Opioids"

# Anatomy OF THE SPINE



The spine is made up of bones called vertebrae that protect the spinal cord. There are also discs between each vertebrae which allow for flexibility.





# DIAGNOSIS *and Treatment*

After pain, the second complaint from patients with back problems is a difficulty in understanding the causes of this and finding treatment that brings them relief. This frustration, curiously, is due to the fact that there are too many treatments and procedures available rather than a lack thereof. There are many different treatment options. Exercise and physical therapy are two of the main strategies used today to alleviate pain; surgery and muscle relaxers, including opiates, are a last resort.

*Successful treatments have one thing in common: the patient's participation.* ”

Successful treatments have one thing in common: the patient's participation. Their determination to follow a physical therapy program is vital, especially when it comes to exercise. Patients must understand the anatomy and functioning of their back, learn postural hygiene (adapting the proper postures for the activities they carry out and their own bodies) as well as stretching, exercising and always following doctor's recommendations.

A program including medication, exercise and modifications to lifestyle are some of the decisions that have proven to offer the most relief. Surgery is useful in some cases for patients that meet specific criteria. Even so, prior to surgery, it is possible to opt for minimally invasive procedures that can reduce the risk of surgery.

# TYPES

## *of Back Pain*

In general, when we refer to “back pain” we are talking about lower back or lumbar pain, which is the most common area and the main cause of disability in the world, according to a study by the World Health Organization. But there are also people who suffer from upper (dorsal) back pain or neck (cervical) pain.

*Back pain is considered to be chronic if it lasts for more than three months or becomes worse during this time, and acute if it appears suddenly and is resolved in a few weeks.*

It is also important to keep in mind a person’s age when the pain appears, since this factor can bring many changes in the spine and increases the probability of developing certain conditions. For example, in your thirties, the intervertebral discs (the small cartilage that separates the spinal vertebra) begin to degenerate, decreasing their ability to absorb impact.

Older adults, especially women, have a higher risk of osteoporosis, a condition that weakens the bones and can cause the vertebra to erode and fracture. Both degenerative disc ailments, like osteoporosis, as well as illnesses generally related to age, such as arthritis, can cause back pain.

It is not just older people who suffer from complications in the intervertebral discs. In fact, an injury to the discs can happen at any age,

whether due to an accident or exertion. When a disc is injured or deteriorates, it can move out of place and compress the spinal cord—an essential part of the nervous system.

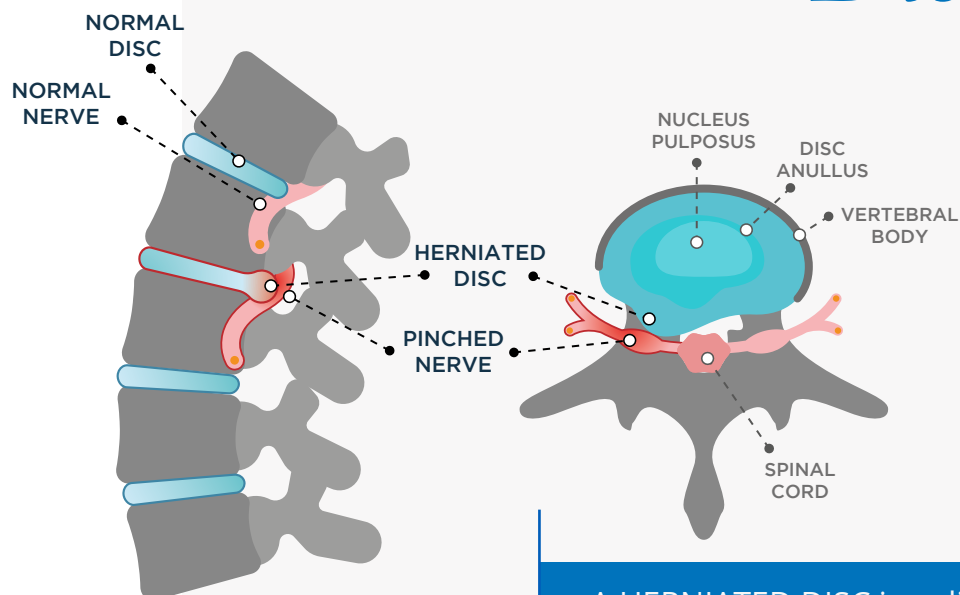
Sprains and strains are the most frequent causes of back pain. Sprains affect the ligaments, which are the fibrous and hard bands of tissue located between the bones, including the vertebrae and spinal cord. Strains are injuries to the muscles or tendons, which connect muscles to bones.

The next most common cause of back pain is a pinched nerve. Two common types of pinched nerves are disc problems (such as a herniated disc) and spinal stenosis, which is caused when the spinal cord narrows and presses against the nerves of the spine.

SPINAL STENOSIS occurs when the space within the spinal canal or around the nerve roots becomes narrowed.



# HERNIATED *Disc*

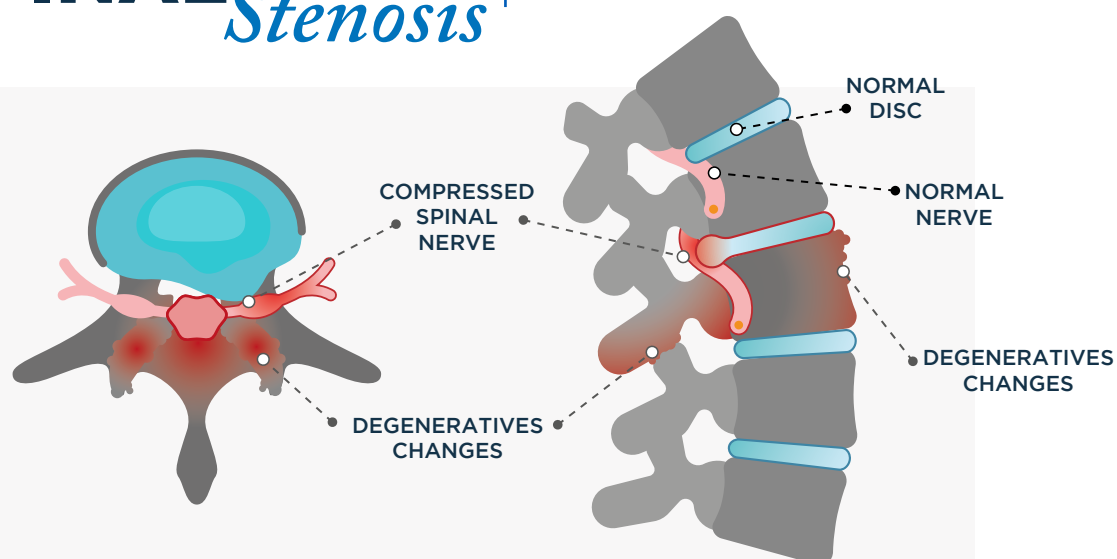


Source: U.S. National Library of Medicine

A HERNIATED DISC is a disc that ruptures. This allows the jelly-like center of the disc (nucleus pulposus) to leak, irritating the nearby nerves. This can cause sciatica or back pain.

*According to a report done by the Harvard School of Medicine, pinched nerves associated with stenosis or hernias are the second most common cause of back pain.*

# SPINAL *Stenosis*



Source: U.S. National Library of Medicine

# Proper TREATMENT

It could be said that the best treatment is based on something as simple as movement. In general, surgery should be reserved for extreme and serious situations that represent a risk to your life; for example, when a spinal tumor or serious injury, such as a spinal fracture, are diagnosed. In most cases back pain is the result of common and everyday activities, though this doesn't make it any less bothersome or debilitating.

Treatment differs according to the type of pain, whether it is acute or chronic. For acute back pain that is caused, for example, by a lumbar injury, the recommendation is to apply ice or a cold compress immediately and use heat after 48 hours to help relax the muscles. When this type of pain finally subsides, the most important thing to do is to focus on prevention by not repeating the same effort or movement as caused the injury.



[For chronic pain, you need to have a long-term plan.](#) The basis of this is exercise. Though it might be tempting to want to stay in bed, physical activity is the best treatment for almost everyone who suffers from back pain. Strengthening your muscles allows you to have better alignment in the spine, which helps to sustain the back. Low-impact aerobic activities, such as swimming and cycling, combined with daily stretching, are the most common recommendations.

In almost all cases we shouldn't underestimate the importance of stretching our muscles, since this not only helps to alleviate pain, but also to prevent future injuries. There are other therapies and activities that can help people in different ways, including yoga, Pilates, massage and acupuncture, among many other options. Some treatments, including massage and physical therapy, are sometimes covered by medical insurance.

A stretching routine, like the one found below, is guaranteed to not only alleviate pain, but can also prevent recurring attacks and further injury. Being consistent in practicing these exercises is the key to any "therapy."



# Exercises FOR STRENGTHENING THE BACK

## WEEK 1

Lay down on your back with both knees bent. Pull one knee towards your chest and hold.



5 -10  
Seconds



5 -10 Repetitions  
on each side



Lay down on your back with both knees bent. Pull both knees towards your chest and hold.



5 -10  
Seconds



5 -10  
Repetitions



Lay down on your back with both knees bent. Slowly lower your back until it's touching the floor and hold.



5 -10  
Seconds



5 -10  
Repetitions



Source: Hola Doctor

## WEEK 2

Lay down on your back with both knees bent.

Lift your torso up towards your knees and hold.



5 -10  
Seconds



5 -10  
Repetitions



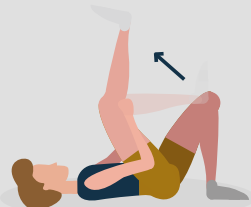
Lay down on your back with both knees bent. Grasp the back of your knee and pull gently until leg reaches a vertical position and hold.



5 -10  
Seconds



5 -10 Repetitions  
on each side



Lay down on your back with legs extended. Grasp one leg and bend it so your calf is over your chest and hold.



5 - 10  
Seconds



5 - Repetitions  
on each side



## WEEK 3

Lay face down and lift your torso upwards, gently arching your back, and hold.



10  
Seconds



5 -10  
Repetitions



On all fours, lift and extend one leg into vertical position no higher than your body, and hold.



5  
Seconds



5 -10 Repetitions  
on each side



Lay down on your back with both knees bent. Lift your buttocks 4-5 inches off the floor and hold.



5  
Seconds



5 - 10  
Repetitions



# SPINAL HEALTH PROGRAM:

## *The Costa Rica Experience*



Doctor Edgar Jiménez Masís is one of the pioneers in Central America of the Spinal Health Program, a program aimed at taking on spine problems from a holistic standpoint and minimizing the need for surgery. In Costa Rica, Jiménez, who was president of the Costa Rican Association of Neurosurgeons from 2015 to 2018, leads a team of doctors, nurses and physical therapists as a specialist in neuroscience at the CIMA hospital in San José where he founded the program seven years ago. Here are a series of questions and answers about his treatment model.



### What is the spinal health program's philosophy?

"This is a program that, instead of sending the patient directly to the operating room, offers them a holistic service to overcome their back problems without the need for surgery. The patient receives a diagnosis and is assigned a physical therapist who helps them to practice the postures and exercises necessary to manage pain. After a series of sessions, the patient is assigned a personal trainer who will help them in the long-term. It's like a club where people have a membership to overcome their medical condition and improve their quality of life without the need for invasive procedures. The result is that people can start to live their lives again without pain and engage in normal physical activities. They start to walk, run and dance again, as well as have the benefit of significant savings on medical care."



### Do patients stick to this strategy in the long-term?

"Many times patients come to their consultation here after they have already seen another doctor with their MRI and diagnosis in hand. They say, 'I have a herniated disc and I want to have surgery.' One time, a patient said to me, 'I want you to operate on the five herniated discs I have.' This is what we call failed back syndrome. But I won't operate on a patient if I know that it will not give the best outcome. At the Program we assess this, and we propose that they try physical therapy and personal training. When the patient begins to see an improvement, they immediately get on board. I can assure you that at least 96% of cases are non-surgical patients; this means that only 4 out of every 100 patients actually requires surgery."



## Is there a special communication strategy you have to help patients understand the benefits of the Spinal Health Program?

"From my point of view, you have to evaluate the patient and clearly explain to them what is wrong with them and the scope of the treatment since sometimes surgeries are sold as magic cures. The patient must have all the information about their diagnosis and the possibilities for this in order to understand it. For example, if we do an MRI on the patient, I display it in front of them on the screen and explain it so they understand what they are seeing. Once the patient understands what we are protecting, they start to follow the treatment. Today we have patients who have been with us since the start of the program, and our team is available for consultations and emergencies 24 hours a day at the hospital and four doctor's offices. This is what I call a network of trusted healthcare professionals."



## What is the typical profile of a patient who comes to the Spinal Health Program?

"After analyzing 8,224 patients who have participated in the program over the last three years with multiple factors causing back pain, we have found that 3,307 (40%) were between 30 and 39 years of age. This graph shows the age ranges, along with the numbers of patients and surgeries. You can see right away the decrease in the frequency of surgeries."



AGE RANGE:	# OF PATIENTS	% PATIENTS	SURGERIES	FREQ. OF SURGERIES
-18	496	6%	0	0.0%
18-29	2348	29%	25	1.1%
30-30	3307	40%	72	2.2%
40-40	1536	19%	26	1.7%
+50	537	7%	16	3.0%

### GRAND TOTAL

	8224	100%	139	1.7%
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## *What steps are included in the process you use to attack back pain?*

"We call the different stages "blocks." The first block is controlling the pain. We can do light radicular compression, using an ultrasound or laser, and use medication for a few days. Usually this first block lasts for ten sessions. Then there is a transition block (***we never make abrupt changes from one stage to the next***) where 50% is treatment to manage the pain and 50% is physical therapy. Then, we start with long-term training."





## Can the model used at the Spinal Health Program be replicated for other types of medical problems?

"Yes, we already have new partnerships with UNIR and Meditec in Costa Rica as well as with other institutions abroad. This type of structuring is the future of medical care. For past generations maybe it was easier to operate. Some doctors don't agree with this strategy because it's a long-term strategy and it's not as profitable as surgery can be. The time a specialist dedicates to a patient is also a key factor in managing back problems. In other treatment programs, patients see exhausted physical therapists who have only 15 minutes with each person. At the Spinal Health Program we dedicate more time to our patients."

## Would you say that these conditions require chronic management?

"Definitely. Of course each case is different, but in general, the earlier you attack the problem, the better your chances are of getting over the back issue with less pain. This is how you can achieve true transformation. There are people who have mild spine injuries, but they got worse and they required surgery because they didn't get timely treatment. A patient that had a mild injury came to the Program when they had already developed stenosis (lumbar pain) and we had to operate on them and insert a prosthetic disc. Of course, we have to try everything else first, but a lot depends on the care they received prior to arriving at our school. We have a patient who came to us at the age of 27 having done exercise with a serious obesity problem without supervision. This sets them up for failure, and the patient can fall into depression. Another patient came to us with a herniated disc and surgery scheduled. We did a block and decompression and implemented a physical therapy action plan. Not only did he not end up needing the surgery, but he now comes to his sessions and walks home. He lives 45 minutes from here. Our goal is for the patient to overcome their pain and restore their lost quality of life."

## What have been the tangible results you have seen in the seven years since you started the program?

"The program has generated significant estimated savings in medical care (eliminating the effect of the decrease in frequency of cases) of nearly \$2 million dollars between 2014 and 2018 by using less costly and non-surgical treatments *(see graph of Spinal Health Program savings)*.

Prior to this program, 3.3% of the total population of patients with diagnosed back pain ended up undergoing surgery. This percentage decreased to 1% in 2018, as the number of surgeries continued to gradually decrease since the program was founded in 2014.

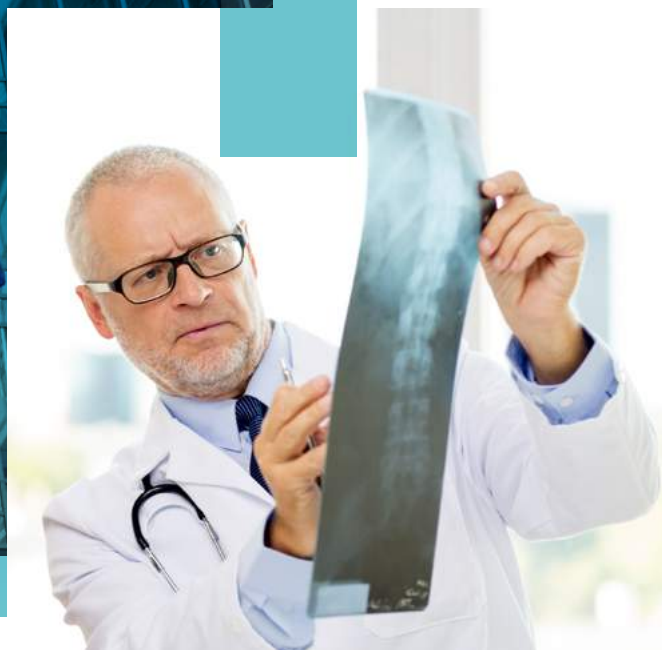
*Even more importantly, 6 out of 10 people who at the time they entered the program had already decided to have surgery based on a doctor's recommendation ended up not having surgery and were able to relieve their pain and improve their quality of life through the Spinal Health Program."*

### SPINAL HEALTH PROGRAM SAVINGS

YEAR	PATIENTS	PROJECTED COST*	ACTUAL COST	SAVINGS	AVERAGE COST P/PATIENT
2014	1346	\$1,826,721.99	\$1,826,721.99		\$1,357.15
2015	1610	\$1,597,624.97	\$1,597,624.97		\$992.31
2016	1602	\$1,605,387.93	\$942,610.29	\$662,777.64	\$588.40
2017	1594	\$1,320,992.56	\$975,556.44	\$345,436.11	\$612.02
2018	2072	\$2,043,320.83	\$1,130,235.81	\$913,085.02	\$545.48
TOTAL GENERAL					
	8224	\$8,394,048.28	\$6,472,749.51	\$1,921,298.77	1.7%

\* The costs we have eliminated are based on the expected frequency of surgery based on the real tendencies prior to the implementation of the program.





## *Success with the Multidisciplinary Program:* **MAYO CLINIC**

Many times back pain can improve in just a few weeks with treatment at home. However, everyone is different and back pain is a complicated affliction. This is why there are a variety of options available to treat back pain. These range from the more conservative strategy of waiting until the pain subsides on its own with stretching, exercises, heat or cold and analgesics, to the more invasive extreme of treatments, such as surgery, for cases of structural problems, such as the narrowing of the spine (stenosis of the spinal canal) or herniated discs that haven't responded to other therapies.

Between these two extremes, science and decades of continual research highlight the positive impact on recovery of holistic medical care programs carried out by multidisciplinary teams. What do these programs look like? They include the participation of not only clinical and non-clinical teams made up of specialists such as neurosurgeons, physical therapists, doctors, orthopedists, radiologists, and nurses, but also implementing an ongoing assessment program, following more conservative step by step treatments, and educating patients.

**The Mayo Clinic**, one of the leading medical institutions in the United States, was able to reduce the number of spine surgeries for outside employers by 54% through its conservative treatment program led by a multidisciplinary team. Doctor Mohamad Bydon, a neurosurgeon in charge of the Spinal Assessment Program affirms that patient satisfaction is very high.

“People have confidence in the program and are grateful to have access to a second opinion from such a highly-regarded institution. They are also grateful to have appropriate care delivered efficiently and centered on the patient. From the patient’s perspective, the program has had a significant and positive benefit.”

Dr. Bydon also explains that the success of the program is due in part to employers and insurance companies who trust this type of medical care because it provides better results for patients at a cost savings due to the reduction in unnecessary care.

“Employers also receive important economic benefits through lowered costs and significant savings as the result of this program, he states.

Next, we have included an interview of Dr. Bydon about the program he helped develop in recent years at the Mayo Clinic.

### *What is the work dynamic like and how is the treatment decision for a patient made?*

“The assessment is made ahead of time. Prior to treating a patient, we assess the case as a team and analyze what treatment route we believe the patient will need. Then, when the patient arrives, they are evaluated in person to confirm that the treatment route we are going to follow is the correct one. The goal of the program is to achieve long-term results using conservative practices and surgery when necessary.”

### *When do you decide if surgery is necessary?*

“Each case is different. We work to ensure that the appropriate care is delivered, whether that is surgical or non-operative care. Generally, for elective cases, non-operative care should be exhausted before surgery is considered.”

### *Who is eligible to participate in this program?*

“Anyone with spine related symptoms and an abnormal result on an MRI is eligible for this program. Employers offer copay reduction incentives for employees who agree to participate in the program because of the high quality of care delivered and the savings for employers.”

### *What happens when a patient finishes the program?*

“One of the things we try to do is to educate patients, particularly those who have a degenerative back condition. It might be a matter of showing people new exercises or new lifestyle habits to help them modify and deal with their condition. Other times, if someone has chronic pain, then we refer them to our chronic pain rehabilitation program.”

### *Why does this program work so well and has so much success?*

“The main factor for us has been the support of patients and their families as well as the commitment from employers. In this program, the patient arrives knowing that the treatment we are recommending is approved by the insurance company and the employer. That is something that removes stress from the patient and allows the medical team to focus of taking care of patients first and foremost.”



# EPILOGUE

Thanks to the intensive work of back pain researchers, these ailments can be improved and controlled, in most cases without the need for surgery or invasive procedures. Treatment has changed drastically in recent years. Exercise plays a key role in solving back problems, and has it has been proven that the best strategy for preventing recurring back pain is to lower risk factors, including losing weight and becoming more physically active.

*This is encouraging news both for people who suffer from back pain, as well as for society in general, because the overall costs for these conditions are immense*

PALIG's local insurance companies in Central America, Panama, and Ecuador offer the **Spinal Health Program**, based on international best practice protocols, to all insured members in those countries. This highly beneficial and innovative program has resulted in the avoidance of hundreds of unnecessary back surgeries and an improved quality of life for the participants.

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Pan-American Life Insurance Group is a leading provider of insurance and financial services in the Americas. Pan-American Life Insurance Company, based in New Orleans, is the main member of the group and has provided trusted financial services since 1911. The Group employs more than 1,950 worldwide and offers top-rated life, accident and health insurance, employee benefits and financial services in 49 states, the District of Columbia (DC), Puerto Rico, the U.S. Virgin Islands. The companies that make up this group offer individual or group health, accident and life insurance throughout Latin America and the Caribbean. The Group has branches and affiliates in Costa Rica, Colombia, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama, and 13 Caribbean markets, including Barbados, Cayman Islands, Curacao and Trinidad and Tobago.

For more information, visit the Pan-American Life Web site at [palig.com](http://palig.com), like us on Facebook, follow us on Twitter @PanAmericanLife, and connect with us on LinkedIn at Pan-American Life Insurance Group.

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