



**Headaches, dizziness, allergies, anxiety, insomnia, depression, arm or leg pain...**

These are just some of the reasons why people visit a chiropractor. However, Chiropractic is often associated mainly with back pain, lumbago, and sciatica. About 10% of the population suffers from these conditions, and herniated discs are the leading cause of disability in people under 45.

That's why this month, we wanted to clarify some points about herniated discs. **What exactly are they? And how can they be relieved without surgery?**

On the last page, you'll also find a very interesting article about **Drinking Water**.

**Happy Reading!**

Dr. Kinnison

### WHAT ARE DISCS AND WHAT FUNCTION DO THEY HAVE?

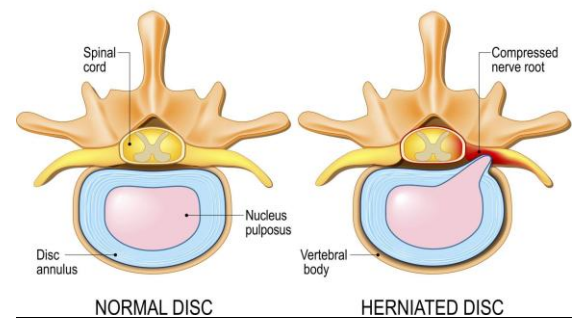
Between the cervical, thoracic, and lumbar vertebrae there is a cushion called the "intervertebral disc."

It is made up of two parts: the central, jelly-like portion called the *nucleus pulposus*, and a fibrous covering that keeps it in place called the *annulus fibrosus*. The annulus fibrosus is thicker in the front portion of the disc, which makes the back wall more fragile. This is why, in most cases when the annulus

tears and causes a herniated disc, it does so toward the back.

The pressure inside the nucleus pulposus is 5 to 15 times higher than blood pressure, which means blood cannot reach it. For this reason, there are also no nerves inside the nucleus pulposus—only in the outer layers of the fibrous covering. This explains why disc degeneration can be painless as long as it does not affect the outermost layer of the fibrous covering; even though the tissue wears down, there are no nerves to perceive and transmit pain.

### Spinal disc herniation



Over time, the load borne by the disc causes the nucleus pulposus to wear down and lose height. This process, known as *vertebral osteoarthritis*, is not an illness in itself. In fact, most healthy people begin to show some degree of wear after the age of 30. Elderly individuals often lose height because the wear of the nucleus pulposus causes the disc to lose thickness, bringing the vertebrae closer together.

Conversely, when the load decreases, the discs are no longer compressed and the space between the vertebrae increases. This happens at night, when lying down eliminates the vertical load. It is estimated that a middle-aged person can gain up to two centimeters in height overnight.

### WHAT IS A HERNIATED DISC?

Herniated discs are the leading cause of disability in people under 45 years old. About 1% of the population suffers from chronic disability for this reason.

A herniated disc is a condition in which part of the intervertebral disc (*nucleus pulposus*) shifts toward the nerve root, compressing it and producing neurological injuries as a result. They can be contained (only deformation, also called *disc protrusion*) or ruptured.

The hernia causes pain in the area where it occurs (most often in the cervical or lumbar regions). The pain is due to inflammation of the vertebral periosteum, the joints, the dura mater, the annulus fibrosus, the posterior longitudinal ligament, and the lumbar muscles of the spine.

A herniated disc can cause a range of clinical symptoms, with the most common being **low back pain (lumbago)** and **sciatica**.

Disc herniations occur more frequently in the lumbar spine, especially in the lower part, between the 4th and 5th lumbar vertebrae and between the 5th lumbar and the sacrum. In the cervical spine, herniations are most often found between the 5th and 6th vertebrae or between the 6th and 7th, often as a result of trauma—for example, a fall or a car accident.

**SYMPTOMS OF A HERNIATED DISC**

The symptoms and signs caused by a herniated disc depend on whether the hernia compresses a nerve root, directly compresses the spinal cord, or compresses both at the same time.

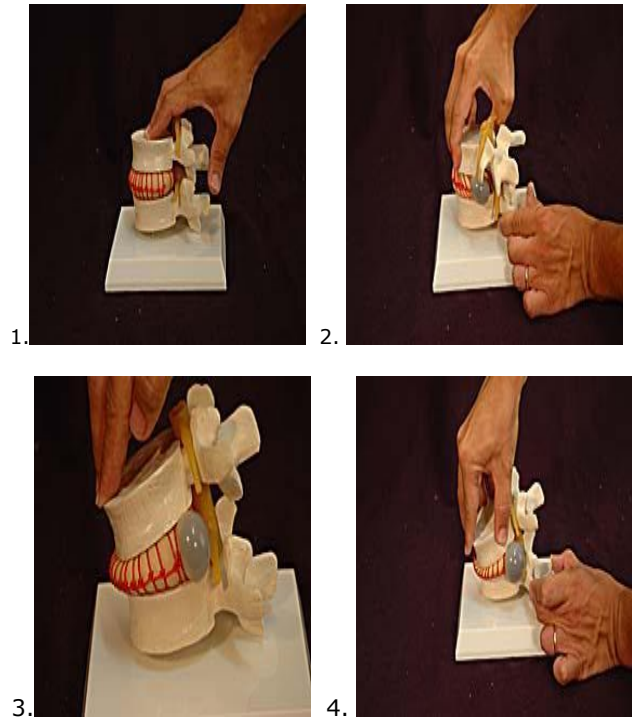


The most common discomfort is pain that limits movement and worsens with extension. The pain may also extend into an arm (if it is a cervical hernia) or into a leg (when located in the lumbar region), following a characteristic pattern of the particular nerve root involved.

In many cases, the onset of pain occurs upon waking, without any trauma or triggering event.

If the sensory function of the affected nerve root is compromised, numbness may occur. If the motor function of a root is compromised, this will result in weakness and loss of strength.

**BEHAVIOR OF THE DISC DURING VARIOUS MOVEMENTS**



1. If pressure is applied to the central area of the disc, the pressure is distributed equally to all points of the disc, and it deforms evenly.

However, if the disc is injured and there is a weakened or damaged area, high pressure can also cause it to protrude.

2. In the case of rotating the two vertebrae against each other, a herniated disc can also occur. As the fibers twist, the pressure on the disc increases, and a hernia may develop in the weakest or most damaged area.

This movement simulates a torsion of the disc during a trunk rotation.

3. However, if pressure is applied to the front part of the disc, the nucleus shifts toward the back, forming a protrusion or a herniated disc, which can also involve nerve root entrapment (*sciatica*). In the photograph, you can see the formation of a posterolateral hernia, one of the most common types.

4. Finally, if anterior pressure is combined with vertebral rotation, a larger herniated disc is generated.

This simultaneous movement of trunk flexion and torsion carries a high risk for people with spinal injuries.

## WHAT DOES TRADITIONAL MEDICINE DO?

After prescribing medications to relieve pain and performing anti-inflammatory injections, the most radical solution doctors offer is surgery.

The most common operation is called a *discectomy*. It consists of cutting out the portion of the disc that has protruded and is pressing directly on the nerve or spinal cord. Under general anesthesia, an incision of about 4–5 cm is made over the area where the hernia is located. A small window is opened in the ligament that connects the vertebrae, and the fragments of the disc compressing the nerve root are removed.

### COMPLICATIONS AND RISKS:

- The hospital stay usually lasts 4–5 days, but the recovery period is much longer.
- The risk of serious complications in lumbar disc herniations does not exceed 1%. However, an absolute guarantee can never be offered.
- Complications can be very serious: **injury to the nerve roots, inflammation of the disc (discitis), and leakage of cerebrospinal fluid.**

The success rate of such an operation is much better than it was 10-15 years ago, but other complications are viable.

## And What About Chiropractic?

The chiropractic approach is always very conservative.

A disc is made up of 95% water, which means it is very movable. It adapts to changes in the surrounding tissues. Think of a waterbed. If you sit on one side, the water shifts to the other side, where a bulge appears. The same thing happens in the spine. When a vertebra moves, it presses on the disc,

which deforms and, in extreme cases, protrudes, creating a herniation.

*The chiropractor, by adjusting the spine, moves the vertebra back into place, which allows the disc to return to its original position (just like when we get up from the waterbed!).*

Surgery removes the pressure from the nerve or spinal cord, but it does not address the root of the problem — the vertebra being out of place. So, over time, the disc will bulge again. The pain and other symptoms will reappear, and this time they may be more intense, since the “shock absorber” is now thinner.

On the other hand, *by moving the vertebrae, the chiropractor not only relieves the pressure on the nerves but also eliminates the cause of the problem.*

# Drinking Water?

## Tap water is loaded with dozens of contaminants that are dangerous to health. To reduce them, we have different methods available.

We continue to call the liquid that comes out of household taps “drinking water,” despite the evidence of the health risks that come from consuming it daily. After receiving industrial waste, irrigation water full of pesticides, animal and human feces, passing through outdated treatment plants that often add nearly as many toxins as they remove, and traveling kilometers through worn-out pipes, the broth we call drinking water contains up to 260 substances, many of them carcinogenic. Yet it is considered legal water because it meets the quality standards set by international and state authorities.

The problem is that those standards are the result of a complex calculation in which, alongside health considerations, a large number of industrial and economic interests are also involved. That is why they change from year to year, and water that is considered drinkable today may not be tomorrow—always justified by countless carefully selected scientific studies.

The variety of contaminating agents grows at the same pace as new molecules are invented and novel technologies are developed.

### Medications:

When a person or an animal takes medication, a large portion of it is excreted through urine and feces. Treatment plants cannot eliminate them completely, which means they end up coming out of the tap. As a result, cholesterol regulators, painkillers,

anti-inflammatories, anti-epileptics, and antibiotics are regularly found in the water.

### Questions About Plastic Bottles?

Natural mineral bottled water is the preferred alternative for people who are aware of the poor quality of tap water. However, bottled water also contains toxic substances. In addition, its transportation and packaging produce a significant environmental impact.

Damià Barceló, head of the Department of Environmental Chemistry at the Spanish National Research Council (CSIC), confirms that antibiotics have been found in bottled water, and that it is subject to fewer legal controls than tap water (quarterly instead of daily). Furthermore, a Greenpeace report states that 2.7 million tons of plastic are used to bottle water. One liter of water in a plastic bottle generates 600 times more CO<sub>2</sub> than one liter of tap water.

### Purifying Water at Home

It is possible to improve the quality of drinking water with different home purification systems. The methods range from the simplest to the most complex, and their effectiveness against contaminants varies greatly. You can use **Water softeners, activated carbon, distillation, ceramic filters, and the most powerful reverse osmosis..**