

A photograph of a person's back, showing the spine and shoulder blades. The lower back area is highlighted with a red glow, suggesting pain or injury. The person's hands are resting on their hips.

# SPINAL FRACTURES

OUR TREATMENT GUIDE

Spinal fractures are common around the world and can have a major impact on your quality of life.

If not treated soon enough, they can even make carrying out daily tasks impossible. Back pain, loss of appetite and sleep or respiratory problems are just a few examples.

If you have been diagnosed with a spinal fracture, a minimally invasive treatment is a therapeutic option which may be considered.

This brochure explains the different causes, consequences and current treatments for spinal fractures.

If you have any questions, don't hesitate to discuss them with your doctor.

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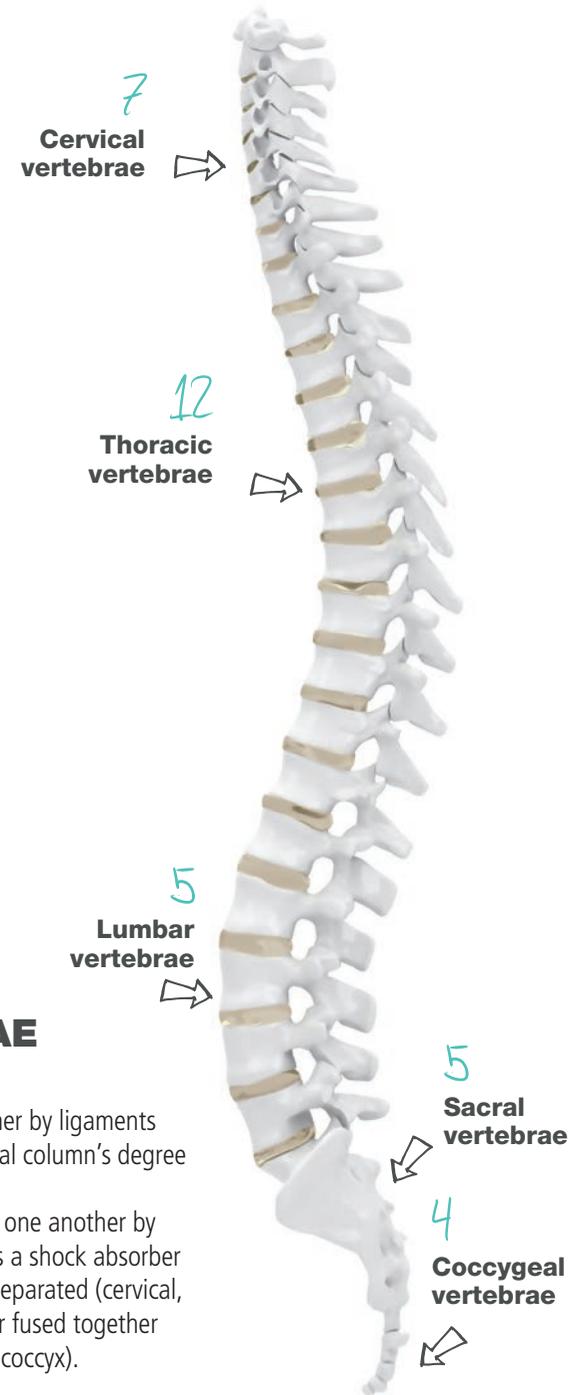
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# THE SPINAL COLUMN

## IS MADE UP OF 33 VERTEBRAE

The **vertebrae** are linked together by ligaments and muscles that control the spinal column's degree of flexibility.

The vertebrae are separated from one another by a cartilaginous disc, which acts as a shock absorber and protects them. They may be separated (cervical, thoracic and lumbar vertebrae), or fused together (as is the case at the sacrum and coccyx).



## SPINAL FRACTURES

# WHY DO THEY HAVE TO BE TREATED?



### WHAT'S THE PROBLEM?

**A spinal fracture occurs when a vertebral body collapses.**

Spinal fractures tend to be very painful and, if left untreated, can adversely affect your general health and well-being, hence the importance of an early diagnosis to ensure more effective management.

## VERTEBRAL COMPRESSION = FRACTURE

**A spinal fracture can occur after an accident.**

Traumas can be divided into two types:

- **Low-energy trauma:** some diseases, such as osteoporosis (loss of bone mass) or cancer (malignant tumours, metastases), combined with a low-energy trauma, such as lifting an object or turning over in bed, can cause what are known as "fragility fractures" of the vertebrae.
- **High-energy trauma:** road traffic accident, fall, sports and occupational accidents.

**Spinal fractures are very common.**

Worldwide, in the year 2000 there were an estimated 1.4 million osteoporotic vertebral fractures<sup>3</sup>.

**1 New Spinal Fracture every 22 seconds worldwide!<sup>1</sup>**

Spinal fractures are the most common osteoporotic fractures (46%), well ahead of fractures of the hip fracture (16%) and wrist (16%)<sup>2</sup>.

It is estimated that, after the age of 50, almost 1 in 2 women and 1 in 5 men will suffer from an osteoporotic spinal fracture<sup>4</sup>.

## WHAT ARE THE CONSEQUENCES?

In addition to being extremely painful, a spinal fracture can affect your balance and therefore increase the risk of new spinal fractures.

After an initial fracture

**X5** RISK  
OF NEW  
FRACTURE<sup>5</sup>

Each additional spinal fracture exacerbates the deformity of the spinal column<sup>6,7</sup> (forward curvature of the spine), with an increased risk of the complications or reduced functional capacities indicated below:

- Reduced mobility, loss of balance and increased risk of falls<sup>8,9</sup>
- Reduction in lung capacity<sup>10,11</sup>
- Chronic back pain and fatigue<sup>12,13</sup>
- Reduced appetite and sleeping problems<sup>10,14</sup>
- Depression, anxiety and low self-esteem.

{ **20% of women** who have already suffered a spinal fracture will suffer another one within 12 months!<sup>1</sup> }

## VERTEBRAL FRACTURES DIAGNOSIS

Spinal fractures are often confused with other types of back pain.

Therefore, report any new or unusual back pain to your doctor promptly. Early diagnosis can lead to more treatment options.

**ONLY 1 IN 3 FRACTURES**  
is clinically reported<sup>16</sup>

**A physical exam, together with an x-ray, can help determine whether you have a spinal fracture.**

### ⇒ Physical Exam

Spinal fractures may be asymptomatic, but certain signs may alert your doctor:

- Sudden severe or chronic back pain
- Curve in the shape of your spine
- Loss of height

### ⇒ X-Ray Exam

After a physical exam, imaging tests such as x-rays or magnetic resonance imaging (MRI) might be ordered to confirm the diagnosis of a spinal fracture.



## SPINAL FRACTURES

# TREATMENT OPTIONS

### CONSERVATIVE TREATMENTS



Traditional treatment for spinal fractures may include several weeks of bed rest, painkillers, physiotherapy and, sometimes, wearing a corset.

#### ⇒ Their limits

- Doesn't treat the fractured vertebra, prolonged bed rest (4 to 6 weeks) is essential for good results but difficult to stick to.
- Morbidity associated with prolonged bed rest (infection, muscle atrophy, bed sores, respiratory problems)

### MINIMALLY INVASIVE TREATMENTS

#### VERTEBROPLASTY

The aim of this technique is to stabilise the fracture and relieve pain. The fractured vertebrae are stabilised by injecting bone cement into the centre of the vertebra.



#### KYPHOPLASTY USING BALLOONS OR STENTS

The objective of this technique is to relieve pain, stabilise the fracture and restore the height of the vertebral body<sup>17</sup>. The procedure involves inserting two inflatable bone tamps or two stents into the vertebra in order to create a cavity, which is then filled with bone cement.

#### ⇒ Their limits

- These techniques are effective in terms of restoring independence and pain relief, but are less effective in terms of restoring vertebral height.<sup>18/19</sup>

### SURGICAL TREATMENTS



Traditionally, a surgical technique known as spinal fusion is used to treat complex spinal fractures with neurological disorders. It is used to permanently block one or more intervertebral articulations in the vertebral column. Metal screws, plates or rods are used to fuse together two or more adjacent vertebrae. The aim is to stabilise the vertebral column and relieve pain.

#### ⇒ Limits and disadvantages

- Major surgery, therefore a long recovery time.
- Rehabilitation necessary.
- Use of heavy analgesics.
- Higher inter-operatively complications rate<sup>20</sup>.

## SPINAL FRACTURES

# THE TREATMENT OFFERED TO YOU

### MINIMALLY INVASIVE RESTORATION WITH SPINEJACK®

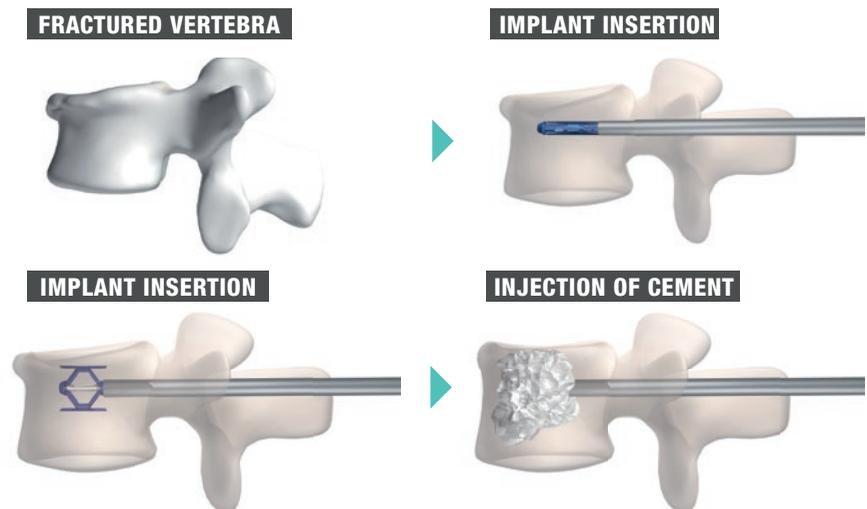
The procedure is a minimally invasive surgical procedure designed to relieve pain, stabilise the fracture and restore your fractured vertebra to its initial shape. It can be done in a radiology room or operating room, in accordance with very strict cleanliness and safety standards.

Under x-ray guidance, the surgeon makes two very thin incisions about one centimetre long, in your back and creates a narrow access path to the fractured vertebra in order to insert two implants.

The surgeon then inserts the implants and injects bone cement to stabilise the fracture.

The procedure is usually performed under general anaesthesia but may also be performed under local anaesthesia, depending on your surgeon's recommendation.

This procedure takes about 30 minutes per fracture level treated, plus the preparation and recovery time.



### THE RISKS OF ANY SURGICAL PROCEDURE

Although the complication rate with this minimally invasive treatment has been demonstrated to be low, as with most surgical procedures there are risks associated with the procedure including heart attack, embolism, infection.

⇒ **Please note, however, that this procedure is not for everyone. Please consult your doctor for a full discussion of risks and whether this procedure is right for you.**

## SPINAL FRACTURES

# AFTER THE PROCEDURE

### IMMEDIATE PAIN RELIEF

Patients usually report immediate relief from back pain. But as everyone perceives pain differently, a mild painkiller may be prescribed for several days.

### ALMOST IMMEDIATE RETURN HOME

Patients are typically discharged from the hospital 3 days after the procedure.

### FAST RETURN TO WORK AND DAILY ACTIVITIES

Once discharged from the hospital, you may be surprised by how quickly you're able to resume your favorite activities.

### FOLLOW-UP

Your doctor will probably schedule a follow up visit during which he'll give you instructions specific to your overall health and level of conditioning.

⇒ Please note, that the success of the treatment vary from one patient to another.

## PATIENT TESTIMONY

**Bruno N., 36 years old** (Mountain Rescue Professional)



*I had a SpineJack® operation in January 2014 after a 17-metre fall during the final phase of a mountain rescue operation. I had a fracture of the L1 vertebra. The operation was carried out by Dr. Vouaillat at the Clinique des Cèdres in Grenoble. I was quickly back at work and enjoying my professional and sports activities, after obtaining my certificate of aptitude. Today, I can carry a 15 kg backpack, go skiing and rock climbing without any restriction."*

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VEXIM SA

Hills Plaza

8, Rue Vidailhan - Bât. B - 1<sup>er</sup> étage

31130 BALMA - FRANCE

Tél. : +33 (0) 5 61 48 86 63

Fax : +33 (0) 5 61 48 95 19

E-mail : vexim@vexim.com



FOR FURTHER INFORMATION

[WWW.VEXIM.COM](http://WWW.VEXIM.COM)