



DECISION AID

Fractured vertebrae:

Do bone cement injections help?

Fractured vertebrae (spinal bones) are often a result of osteoporosis. They cause the bones to shorten and change shape. These fractures often go unnoticed and usually heal on their own. But they can sometimes cause pain. The pain may be mild, but some fractures are so painful that hospital treatment is needed.

The pain usually goes away after 4 to 6 weeks, and at the latest within three months. That's how long it typically takes for a fracture to heal. If the pain lasts longer than three months, it is considered to be chronic. This can be a sign of a poorly healed fracture, but there may also be other causes.

Painful fractured spinal bones can be treated in various ways. Your doctor might recommend a surgical procedure where bone cement is injected into the bone. Because these kinds of procedures also carry risks, it is worth carefully weighing their pros and cons. This decision aid is here to help you with that.

It is also a good idea to take steps to prevent further vertebral fractures. You will find links to in-depth information about osteoporosis on the last page of this decision aid.

THESE ARE THE TREATMENT OPTIONS:

Treatment without surgery:

- Painkillers like ibuprofen. For severe pain, stronger medications (opioids) taken for a short time
- Physical therapy – for example, with specific stretching and strengthening exercises
- A back brace (orthoses)

Bone cement injection:

- Injection of bone cement into the spinal bone (vertebroplasty)
If the fractured spinal bone is straightened out using a balloon first, the procedure is called kyphoplasty.

You can read about the pros and cons of these treatments on the next few pages.

IMPORTANT:

Most people with osteoporosis-related spinal bone fractures do not have surgery. If the fracture only happened a few weeks ago and the pain is very severe despite medication, bone cement treatment can sometimes relieve the symptoms a little faster. Bone cement treatment has no proven benefits in the long term.

In rare cases, bone cement injections cause serious complications, so it's a good idea to carefully weigh the pros and cons before making a decision. If you're not sure whether bone cement treatment might help you, you have the right to get a second medical opinion.

This decision aid compares the advantages and disadvantages of bone cement treatment and conservative treatment. The aim is to help you prepare for a doctor's appointment, but not to replace it.

WHAT TO EXPECT OF THE TREATMENT

	Non-surgical treatment	Surgical treatment with bone cement
<p>What does the treatment involve?</p>	<ul style="list-style-type: none"> Mild pain can be relieved with anti-inflammatory painkillers such as ibuprofen. If the pain is severe, it can be treated with stronger painkillers such as opioids for a short time. Back braces (orthoses) can sometimes be a short-term option to take the strain off the back and help the bone to heal. At first, you should avoid lifting and carrying heavy objects that weigh more than 5 kilograms. Aqua aerobics is especially suitable at the beginning. Physical therapy gradually stretches, moves and strengthens the muscles. The exercises are adapted to the symptoms and healing process. 	<ul style="list-style-type: none"> Bone cement treatment involves injecting thick paste-like bone cement into the broken spinal bone using a hollow needle. The bone cement then hardens within a few minutes. The most common procedures are called vertebroplasty and kyphoplasty. During kyphoplasty, a balloon is first inserted into the spinal bone and then inflated to partially straighten up the bone. The cement is then injected into the bone. Both procedures can be carried out under local or general anesthetic – as an outpatient procedure or in hospital.
<p>Who is the treatment suitable for?</p>	<p>Conservative treatment is an option for all women and men. The specifics of the treatment will depend on various factors:</p> <ul style="list-style-type: none"> The severity of the symptoms, the type of fracture and the stage of the healing process. Individual situation: Sometimes only certain painkillers are an option – for instance, because of other diseases or interactions with other medications. <p>If the pain has lasted for more than three months (has become chronic):</p> <ul style="list-style-type: none"> It can be a good idea to rule out other causes of pain because most fractured spinal bones heal after that amount of time. It might be a poorly healing fracture. It might not be possible to say what exactly is causing the pain. Even if it's not possible to find the exact cause, a pain rehabilitation program or behavioral therapy are still options. The aim is to make it easier to cope with the pain in daily life. That also involves identifying behaviors and learned thought patterns that make the pain worse, and then changing them. 	<p>Treatment with bone cement is only an option in certain circumstances:</p> <p>If you have severe, acute pain that greatly restricts your mobility – and if painkillers</p> <ul style="list-style-type: none"> do not provide enough pain relief, can't be taken, or have strong side effects. <p>Only within six weeks of the fracture, unless</p> <ul style="list-style-type: none"> the pain has hardly improved despite having enough conservative treatment, or a lot of painkillers are still needed or they are not well tolerated. <p>For chronic pain that has lasted for more than three months if</p> <ul style="list-style-type: none"> magnetic resonance imaging (MRI) shows a build-up of fluid in the broken spinal bone (bone marrow edema) and other possible causes of the pain have been ruled out. <p>But sometimes bone cement treatment isn't even possible in these circumstances – for instance, because the spinal bone has collapsed too much as a result of the fracture.</p>

PROS AND CONS OF THE TREATMENTS

	Non-surgical treatment	Surgical treatment with bone cement
How effective is the treatment?	<ul style="list-style-type: none"> • Painkillers can often relieve acute pain effectively. • To stay mobile, it's a good idea to start physical therapy as soon as possible. • Exercise therapy with specific exercises can reduce the risk of falls and further fractures in the long term. The aim is to strengthen your back, and to improve your balance and coordination. • There is a lack of good research on the effectiveness of back braces. 	<p>Several studies have compared bone cement injections with a placebo, where the patients thought they had been given a bone cement injection but they had not. The results:</p> <ul style="list-style-type: none"> • If the fracture is older than six weeks, bone cement treatments do not help (or only help a little). • One study found that the procedure provided some pain relief in around 20% of the participants. Those people had very severe pain and the fracture was usually only three weeks old. • Studies that compared vertebroplasty and kyphoplasty did not find any differences in pain relief between the two.
What are the possible side effects?	<ul style="list-style-type: none"> • Anti-inflammatory painkillers like ibuprofen can sometimes cause stomach problems and abdominal pain. • Strong painkillers (opioids) can cause side effects such as constipation, tiredness, dizziness and (especially in older people) problems such as mental confusion. 	<ul style="list-style-type: none"> • Bruising can occur at the site of the injection. That can increase pain in the short term or irritate the tissue in other ways. • Depending on the type of anesthetic used, short-term side effects such as headache or nausea can occur. • If painkillers are used too, they might cause side effects as well.
What are the possible complications?	<ul style="list-style-type: none"> • Anti-inflammatory painkillers increase the risk of stomach ulcers. They also slightly increase the risk of cardiovascular diseases (heart and blood vessel diseases), particularly when taken regularly over a long time period. • Sometimes people become dependent on strong painkillers in the long term. For this reason, strong painkillers should be replaced with weaker ones as soon as possible. • Back braces should only be worn for short periods or a few hours at a time because otherwise they can weaken the upper body muscles. 	<p>If the paste-like bone cement gets into surrounding tissue, it can cause complications:</p> <ul style="list-style-type: none"> • If the cement presses against the spinal cord, emergency surgery might be needed to take the strain off it. • If it gets into the bloodstream, the cement might block blood vessels. That can be life-threatening. <p>Other possible complications include infections and bleeding due to damaged blood vessels.</p> <p>These complications are rare. There are no exact statistics here, though.</p>
What remains unanswered?	<ul style="list-style-type: none"> • There is a lack of good research on whether physical therapy can help to relieve acute pain caused by fractured spinal bones. 	<ul style="list-style-type: none"> • It is not clear whether bone cement treatment affects the risk of further spinal bone fractures.

HELP WITH YOUR DECISION

You may still be unsure about which treatment you would prefer. You can write down your thoughts and questions on the following two pages.

Which treatment would you consider?		What do you like about it?	What don't you like about it?
Non-surgical treatment	<input type="radio"/>		
Surgical treatment with bone cement	<input type="radio"/>		

IF YOU STILL AREN'T SURE: WHAT ELSE DO YOU NEED FOR THE DECISION?

Research on the pros and cons of the treatments has left some questions unanswered. This can make the decision more difficult. Whether bone cement treatment is suitable for you and likely to help will mainly depend on your individual situation – like how old the fracture is, what it looks like, and whether you can use painkillers.

If you need more support:

- You can find links to further information on the next page.
- Seek a second medical opinion. You will find information about this on the next page, too.



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Publishing details

This decision aid was developed by the Institute for Quality and Efficiency in Health Care (IQWiG, Germany). You will find information about our work and the sources we use here:

- www.informedhealth.org/our-approach

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