

Take a Deep Breath

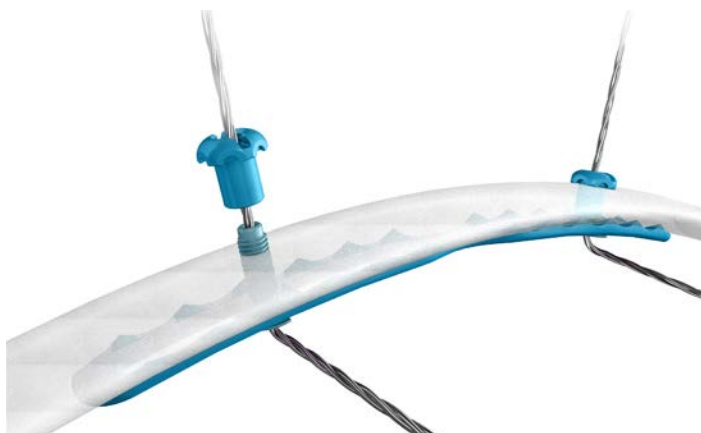
Towards Recovery

As you prepare for surgery, you may want to review your surgeon's options for rib fixation.

Knowing your options will allow you to make an informed decision on what fixation system will most effectively stabilize your rib, minimize pain, and help get you back to the activities that you enjoy most.

ZIMMER BIOMET CURRENTLY OFFERS TWO TREATMENT OPTIONS FOR PATIENTS THAT NEED RIB FIXATION:

WHAT IS RIBFIX ADVANTAGE®?

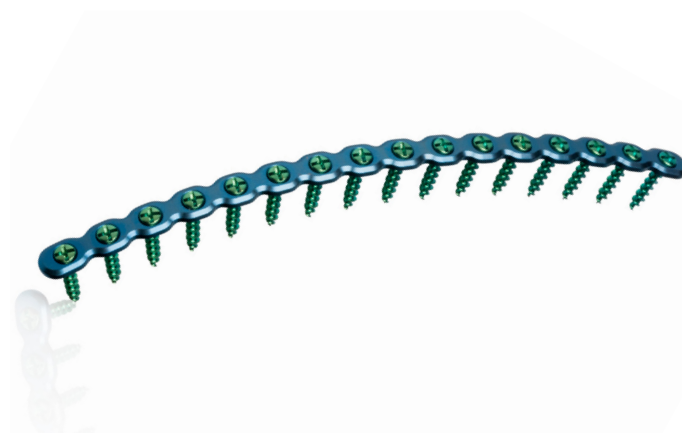


RibFix Advantage is a less invasive approach to rib fracture repair. Using a system of metal bridges and posts, this system offers less muscle disruption. The product is designed to fit against the rib's natural arch, leading to restored stability at the fracture site. This restored stability may lead to faster recovery. Surgery is performed while the patient is asleep under general anesthesia.

The procedure generally follows these steps:

- Once the fracture is identified, a surgeon will make a reduced-size incision, the scope entry point. This less-invasive surgery uses a camera to ensure the correct placement of the implant.
- The surgeon will then drill into the center of the rib on either side of the fracture, creating a guide so that the device can secure rib placement.
- During the procedure, the implants are placed on the underside of the rib to stabilize the fracture.

WHAT IS RIBFIX BLU®?



While RibFix Advantage is attached to the rib's underside, RibFix Blu is a rigid fixation system of metal plates and screws connected on the top side of the rib bone to stabilize the fracture site helping facilitate the healing process. It's often used during sternal reconstructive procedures, trauma, or planned osteotomies. Surgery is performed while the patient is asleep under general anesthesia.

The procedure generally follows these steps:

- Fracture identified using CT Scan and skin is marked to identify location of fracture
- The incision is made over the fractured rib to gain access to the injury
- They will then bring the two broken segments together and attach a titanium plate to the top side of the bone with screws

SOURCES

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2. Liang YS, Yu KC, Wong CS, Kao Y, Tiong TY, Tam KW. Does Surgery Reduce the Risk of Complications Among Patients with Multiple Rib Fractures? A Meta-analysis. *Clinical orthopedics and related research*. 2019;477(1):193-205
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4. Liu X, Xiong K. Surgical management versus non-surgical management of rib fractures in chest trauma: a systematic review and meta-analysis. *Journal of cardiothoracic surgery*. 2019;14(1):45.
5. Liang YS, Yu KC, Wong CS, Kao Y, Tiong TY, Tam KW. Does Surgery Reduce the Risk of Complications Among Patients with Multiple Rib Fractures? A Meta-analysis. *Clinical and related research*. 2019;477(1):193-205
6. Coughlin TA, Ng JW, Rollins KE, Forward DP, Olliver BJ. Management of rib fractures in traumatic flail chest: a meta-analysis of randomized controlled trials. *The bone & joint journal*. 2016;98-b(8):1119-1125.
7. Cataneo AJ, Cataneo DC, de Oliveira FH, Arruda KA, El Dib R, de Oliveira Carvalho PE. Surgical versus nonsurgical interventions for flail chest. *The Cochrane database of systematic reviews*. 2015(7):Cd009919.
8. RibFix Advantage IFU
9. RibFix Blu IFU



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Your progress. Our promise.®



FEWER DAYS IN THE ICU¹

ICU length of stay was found to be significantly shorter for surgical rib stabilization patients. Reported reductions range from 2 days to 6.5 days through various studies.



FEWER DAYS IN THE HOSPITAL²

Hospital length of stay was found to be shorter for surgical rib stabilization patients in all but one. Reductions in hospital stay range from 3.8 fewer days to 11.4 fewer days.



69% LOWER RISK OF MORTALITY^{1,3}

7/10 of reviews found significant reductions in mortality rate (between 56% and 76%) for patients undergoing surgical rib stabilization when compared to conservative treatment.



66% LESS RISK OF TRACHEOSTOMY⁴

Patients who had surgical rib stabilization have shown to have a range of 41% lower to 88% lower risk of tracheostomy, an opening in the neck to place a tube into a person's windpipe.



61% LESS RISK OF PNEUMONIA⁵

Benefits from surgical rib stabilization ranged from 41% to 82% lower risk of pneumonia.



4.95 FEWER DAYS OF MECHANICAL VENTILATION^{5,6,7}

Benefits from surgical rib stabilization ranged from 41% to 82% lower risk of pneumonia.

To help minimize risk, it is always important to follow your surgeon's guidance.

The RibFix Advantage System is indicated for the fixation, stabilization, and fusion of rib fractures and osteotomies of normal and osteoporotic bone.⁸

POSSIBLE ADVERSE EFFECTS

1. Nonunion or delayed union which can lead to breakage of the implant.
2. Metal sensitivity, or allergic reaction to a foreign body.
3. Limb shortening due to compression of the fracture or bone resorption.
4. Decrease in bone density.
5. Pain, discomfort, or abnormal sensations due to the presence of the device.
6. Nerve damage due to surgical trauma.
7. Necrosis of bone.
8. Vascular changes.

The RibFix Blu system is indicated for use in the stabilization and fixation of fractures in the chest wall.⁹

POSSIBLE ADVERSE EFFECTS

1. Poor bone formation, Osteoporosis, Osteolysis, Osteomyelitis, inhibited revascularization, or infection can cause loosening, bending, cracking or fracture of the device.
2. Nonunion or delayed union which may lead to breakage of the implant.
3. Migration, bending, fracture or loosening of the implant.
4. Metal sensitivity; or allergic reaction to a foreign body.
5. Decrease in bone density due to stress shielding.
6. Pain, discomfort, abnormal sensation, or palpability due to the presence of the device.
7. Increased fibrous tissue response around the fracture site and/or the implant.
8. Necrosis of bone.
9. Inadequate healing.
10. Selection of screws which are longer than the depth of the bone may cause possible impingement on structures internal to chest wall including vessels, pleura and other structures.

The information herein is of a general nature and does not represent or constitute medical advice or recommendations and is for general education purposes only. The information includes descriptions of a medical device that a surgeon may choose for the repair of rib fractures.

Zimmer Biomet manufactures medical devices, including the rib fixation products that may be used by your surgeon. We do not practice medicine all questions regarding your medical condition must be directed to your doctor(s). Results with rib fixation products will vary due to health, weight, activity and other variables. Not all patients are candidates for this product and/or procedure. Only a medical professional can determine the treatment appropriate for your specific condition. Appropriate post-operative activities will differ from patient to patient. Talk to your surgeon about whether rib fixation is right for you and the associated risks, therewith, including but not limited to the risks of pain or discomfort, infection, fracture, breakage, movement or loosening of the implant, inadequate or permanent injury or death. For a complete list of risks associated with Zimmer Biomet's rib fixation products, see www.ribfixation.com risk page.

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