

## What is Pectus Excavatum?

Pectus Excavatum is a chest disorder occurring in approximately one out of every 1,000 children. This congenital deformity is characterized by a concavity of the sternum and is often referred to as "sunken" or "funnel" chest. The inward facing sternum can affect heart and lung function. The heart is often displaced to the left side of the chest and there is compression of the heart and lungs. Patients may experience shortness of breath, chest pain, mitral valve prolapse, palpitations, and/or respiratory disease.

Pectus Excavatum is mildly present at birth and worsens as the child grows. The deformity can magnify considerably during the teenage growth years. Those suffering from Pectus Excavatum may also experience emotional side effects including negative self-image and low self-esteem.



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### GLOBAL HEADQUARTERS

For more information on Pectus Bar, please contact us at:

One Surgeon. One Patient.

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What fascinates you about the body is also what drives us. That's why we're always pushing the boundaries of engineering to make products that help you keep the human form as glorious as it was intended. To learn more about our breadth of products, call 800-874-7711 or visit us online at [biometmicrofixation.com](http://biometmicrofixation.com). We'd love to join you in a conversation about the future.

This brochure is presented to demonstrate the clinical technique utilized by Dr. Donald Nuss who is familiar with the Pectus Bar and its applications in Pectus Excavatum Corrective Surgery. As the manufacturer of the device, Biomet Microfixation does not practice medicine and does not recommend this or any other surgical technique for use on a specific patient. The surgeon who performs any procedure is responsible for determining and utilizing the appropriate technique for such procedure for each individual patient. All surgeries carry risks. For additional information, please visit our website at [www.biometmicrofixation.com](http://www.biometmicrofixation.com) or call 1.800.874.7711.

- Pectus Excavatum Surgery CHKD  
3. Way To Grow Facts: Patient Education @ 1997  
The Journal of Pediatric Surgery, 1998; 33(4).  
"A 10 Year Study of a Minimally Invasive Technique for the Correction of Pectus Excavatum,"  
Daniel P. Croitoru, M.D., and Michael E. Katz, M.D.,  
2. Donald Nuss, M.B., Ch.B., Robert E. Kelly, Jr., M.D.,  
Hospital of the King's Daughters and Eastern Virginia  
Medical School, 1998.  
1. Taken from "The Nuss Procedure" video, Children's  
Pectus Bar Technique taken from:



## Pectus Bar Pectus Excavatum Correction

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## Post Operative Guidelines

Implant stability is key to the successful correction of Pectus Excavatum. Following the post-operative instructions below will aid in ensuring maximum stability of the implant.

### Restricted Activities

- Bending at the waist (Patient should bend only at the hip).
- Twisting at the waist
- Rolling onto either side
- Running or aerobic activity
- Any other strenuous activity
- Heavy lifting (including school books and backpacks)

These guidelines are important to avoid irritation, pain, and movement of the implant. Please consult your surgeon before starting any exercise routine.

## The Nuss Technique and Pectus Bar

Previously, surgical correction of this deformity was made through an invasive procedure requiring resection of both cartilage and bone. It required hours of operating time and could leave the patient with a more rigid than normal chest. Dr. Donald Nuss, in cooperation with Biomet Microfixation, developed a minimally invasive surgical procedure and Pectus Bar implant to remodel the chest wall over a 2 to 3 year period.

The Nuss Technique uses principles of minimal-access surgery and thoracoscopy combined with the proper placement of the Pectus Bar to achieve correction of Pectus Excavatum. The Pectus Bar is bent specifically for each patient based on the degree of correction required. The curvature of the Pectus Bar reflects the ideal shape of the patient's chest and is inserted while the patient is under general anesthesia. The bar is implanted under the sternum. In order to prevent movement of the bar a stabilizer is placed on either side of the patient. The correction of the chest should be visible immediately after surgery although the bar is intended to stay implanted for a minimum of two years.

The Pectus Bar is not visible from outside of the chest and complications of this surgery are uncommon, however, with any surgery there are risks involved. Please consult your surgeon for these risks or visit our website at [www.biometmicrofixation.com](http://www.biometmicrofixation.com) for additional information. This method of treatment represents significant advantages over alternative corrective procedures and offers the following benefits to patients:

### Minimally Invasive Operation

The Nuss technique will require only three small incisions; one two-inch incision on each side used for insertion of the bar and one smaller incision on the patient's right side used for insertion of the thoracoscope.

### Reduces Operating Time and Blood Loss

Operating time required for the Nuss Technique is approximately 45 minutes and patient blood loss is generally 10-30 ccs. In comparison, the operating time for a full chest reconstruction is approximately 4 hours and patient blood loss may reach 300 ccs.

### Diet

Patients may return to a regular diet once home, making necessary adjustments for any medications prescribed by their doctor.

### Activities

- Practicing good posture to help maintain implant stability
- Walking frequently to aid in building strength after the surgery
- Deep breathing exercises as prescribed by your doctor
- Moderate exercise is encouraged after the first six weeks of recovery

Before starting any exercise routine, please consult your surgeon or physician

### Minimal Recovery Time

The average recovery time in the hospital is 4-5 days and most children return to school within 2-3 weeks.

### Journal Article

Normal Long-Term Chest Correction and Excellent Long-Term Cosmetic Result.

A 10-year study of a Minimally Invasive Technique for the Correction of Pectus Excavatum indicated excellent long-term results. The Journal of Pediatric Surgery, 1998; 33(4). Donald Nuss, M.B., Ch.B., Robert E. Kelly Jr., M.D., Daniel P. Croitoru, M.D., and Michael E. Katz, M.D.

## Technique Highlights

Before and after illustration of the minimally invasive repair of pectus excavatum.

CT Scan of a deformity with a Hallard index of 3.5.

The patient's chest is measured to determine what size bar should be used to correct the deformity.

The bar is carefully bent to the shape of the desired form of correction.

The bar fits snugly on both sides of the patient, underneath the patient's sternum and is worn approximately 2 to 3 years.