

# Understanding Congenital Chest Wall Disorders



Congenital chest wall disorders are conditions a child is born with. The chest bones don't develop normally. These disorders can range from mild to severe.

The most common congenital chest wall disorders are funnel chest and pigeon chest:

- **Funnel chest or sunken chest (pectus excavatum).** The breastbone is pushed inward. The chest looks sunken or caved in. This is the most common type of chest wall disorder. It affects boys more than girls.
- **Pigeon chest (pectus carinatum).** The breastbone is pushed out. So the chest bulges out. This condition is more common in boys than in girls. In some cases, 1 side of the chest may stick out more than the other.

## What causes congenital chest wall disorders?

Experts don't know exactly what causes these conditions. It may be that the ribs grow unevenly, pushing the breastbone down (funnel chest) or out (pigeon chest). Having a family history of these conditions may raise the risk. Connective tissue disorders, such as Marfan syndrome, Ehlers-Danlos, and osteogenesis imperfecta may also be linked to these conditions.

## Symptoms of congenital chest wall disorders

In some cases, a chest defect is first noticed when a child is very young. But in many cases, it's not easy to see the changes in the chest until the teen years, when the child has growth spurts.

Chest wall conditions can affect heart and lung function. Because of this, symptoms may include:

- Feeling short of breath, often during exercise
- Tiredness
- Pain in the chest, ribs, and back
- Fast heartbeat
- Respiratory infections

Children with these conditions may also develop an abnormal curve of the spine (scoliosis).

## Diagnosing congenital chest wall disorders

The healthcare provider will give your child a physical exam. They may also take photos. These can be helpful in comparing the results later if your child has surgery. Your child may also have some tests, such as:

- **Chest X-ray.** This is done to see how severe the condition is, and to find scoliosis.
- **Chest CT.** This gives detailed images of the chest. It helps the healthcare provider see if the case is mild, moderate, or severe.
- **Lung function tests.** These tests may be done to check how well the lungs work.
- **Heart evaluation.** An ECG or echocardiogram of the heart may be done to see how well the heart is working.

## Treatment for congenital chest wall disorders

Treatment choices will depend on if the disorder is mild or severe. Physical therapy and exercises may also be advised to strengthen weak chest muscles.

### Funnel chest

- **Mild.** In mild cases with no breathing problems, no treatment may be needed.
- **Moderate to severe.** Surgery may be advised. Your child's surgeon will talk with you about which choice is best for your child and when it's advised to have the surgery. Surgery may be done in younger children or may be delayed until they are a teen or older. Two methods are available:
  - **Ravitch procedure.** With this procedure, the abnormal cartilage and ribs are removed. The breastbone is broken (fractured) in order to be straightened. A small support bar is placed in the chest wall to keep it in the correct position. The bar is removed about 6 months later.
  - **Nuss procedure.** This is a less invasive method. A few small cuts (incisions) are made. The surgeon places a steel bar into the chest. This bar pushes out the breastbone. The bar is removed after 3 years.

### Pigeon chest

- **Mild.** In mild cases with no breathing problems, no treatment may be needed.
- **Mild to moderate.** Wearing a chest brace may be a choice in mild to moderate cases for teens whose bones are still growing. This can help push the breastbone into the correct position. The brace must be worn daily for 6 months to a year.
- **Severe.** Surgery may be advised, using the Ravitch procedure described above.

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