CONDITION

Pectus carinatum

Pectus carinatum is an outward projection of the breastbone caused by unusual growth of chest cartilage.

WHAT IT IS
Outward growth of the breastbone and nearby rib cartilage

BODY SYSTEM
Bones, joints, and chest wall

MAIN SYMPTOMS
Protruding chest, tenderness, breathlessness, body image distress

WHAT CAUSES IT
Unclear; abnormal cartilage growth, sometimes familial

HOW IT IS DIAGNOSED
Chest examination; imaging only when needed

MAIN TREATMENT
Observation, chest bracing, or corrective surgery

CAN IT BE CURED?
Sometimes - bracing or surgery can correct

IS IT AN EMERGENCY?
No - sudden chest symptoms need separate urgent assessment

LONG-TERM OUTLOOK
Usually stable after growth, with good overall health

Overview

Pectus carinatum is a difference in the shape of the chest wall. The breastbone, called the sternum, and nearby rib cartilage project outward rather than lying relatively flat. It is sometimes informally called "pigeon chest."

The change may involve the middle or lower breastbone, or less often the upper breastbone. One side can project more than the other, making the chest look uneven. The breastbone itself is not growing like a tumour. The shape develops because the cartilage connecting the ribs to the breastbone grows differently.

Pectus carinatum often becomes more noticeable during a growth spurt in adolescence. In some people, it can be seen earlier in childhood. It may be mild and cause no physical difficulty, or it may affect comfort, exercise, posture, clothing choices, and confidence.

The condition does not usually damage the heart or lungs. However, symptoms such as breathlessness or poor exercise tolerance deserve assessment because they may have another cause. Treatment is available when the chest shape causes physical or emotional difficulties.

Symptoms

The main feature is an outward-projecting breastbone. It may be centred, pushed more toward one side, or accompanied by flaring of the lower ribs.

Other possible symptoms include:

Many people have no physical symptoms. The effect on body image can still be important, particularly during adolescence. A young person may avoid swimming, changing rooms, fitted clothing, or social situations.

Breathing symptoms should not automatically be blamed on the chest shape. Asthma, low fitness, anaemia, anxiety, and heart or lung conditions can cause similar symptoms and may need separate assessment.

- Tenderness or aching over the raised area
- Chest stiffness or discomfort when lying on the front
- Shortness of breath or reduced stamina during exercise
- Awareness of a fast heartbeat during activity
- Poor posture or rounded shoulders
- Worry, embarrassment, or avoidance of activities that expose the chest

Causes and risk factors

The exact cause of pectus carinatum is not fully understood. It appears to involve unusual growth of the cartilage that joins the ribs to the breastbone. The condition is not caused by poor posture, exercise, carrying bags, or anything a parent did during pregnancy.

It can run in families, although many people have no known family history. It may occur by itself or alongside another chest wall difference, such as pectus excavatum, in which the breastbone sinks inward.

Pectus carinatum is sometimes associated with scoliosis, which is a sideways curve of the spine. It can also occur in people with connective tissue conditions such as Marfan syndrome.

Connective tissue supports structures throughout the body, including bones, joints, blood vessels, and eyes.

Having pectus carinatum does not mean that you have an inherited syndrome. A clinician may look for related features if the chest shape is unusual, there is a strong family history, or there are concerns involving the spine, joints, heart, or eyes.

Diagnosis

Pectus carinatum is usually diagnosed from your health history and a physical examination. A clinician will look at the chest from different angles and check whether the projection is symmetrical.

They may gently press on the raised area to see how flexible the chest wall is. A flexible chest is more likely to respond to bracing. A specialist brace service may measure the amount of pressure needed to flatten the projection safely.

The examination may also include your spine, shoulders, posture, heart, and lungs. Height, arm span, joint flexibility, and family history may be considered if there are signs of a connective tissue condition.

An X-ray or other scan is not always necessary. Imaging may be used if the shape is unusual, another chest condition is suspected, or surgery is being considered. CT scans provide detailed images but expose you to more radiation, so they are not routinely needed for every person.

Breathing tests, an electrocardiogram, or an echocardiogram may be arranged when symptoms or examination findings suggest a heart or lung problem. These tests are not required simply because the chest projects outward.

Treatment and management

Treatment is based on the chest wall's flexibility, whether growth is continuing, the severity of the projection, and how much it affects daily life. A mild shape that causes no concern may only need observation.

A chest brace is often used for a flexible pectus carinatum in a child or teenager who is still growing. The brace is a fitted device that applies controlled pressure to the raised area. It gradually guides the chest toward a flatter position.

Brace schedules differ between services and stages of treatment. Some people begin with

longer periods of daily wear and later move to a maintenance phase. The specialist team adjusts the brace and checks the skin, fit, pressure, and progress. Consistent wear is important, but the brace should not cause severe pain, broken skin, numbness, or breathing difficulty.

Bracing may take months or longer. Treatment often continues until growth has slowed because the projection can return during another growth spurt. More rigid chest walls, including many adult chests, may respond less fully to bracing.

Surgery may be considered when the chest is very rigid, bracing has not worked, or the shape causes substantial difficulties. One approach removes or reshapes abnormal rib cartilage and repositions the breastbone. Another uses a metal bar to apply pressure from inside the chest wall. The available approach depends on anatomy and specialist experience.

Surgery involves anaesthesia, recovery time, pain control, and risks such as bleeding, infection, scarring, or movement of implanted material. A chest wall surgeon can explain the likely benefit and risks for the specific procedure being considered.

Exercise cannot reshape the cartilage or breastbone. It can still improve posture, chest and back strength, fitness, and confidence. Physiotherapy may be useful when posture, stiffness, or muscle imbalance contributes to discomfort.

Complications

Pectus carinatum usually does not lead to serious medical complications. The most common difficulties relate to discomfort, body image, and emotional wellbeing.

A prominent area can be tender after pressure or impact. Some people find certain sleeping positions, sports equipment, or tight clothing uncomfortable. Severe or rigid shapes may limit chest wall movement, although significant heart or lung impairment is not typical.

Possible treatment-related problems include skin irritation from a brace, poor fit as the body grows, and recurrence after treatment stops. Surgery has additional risks and requires follow-up while the chest heals or implanted material remains in place.

An associated condition, rather than pectus carinatum itself, may create other health needs. For example, scoliosis or a connective tissue syndrome may need its own monitoring and treatment.

Prevention

Pectus carinatum cannot currently be prevented. It develops through chest cartilage growth and may have an inherited component. Posture, diet, and exercise do not prevent it.

Early recognition can still be useful. Bracing generally works best while the chest wall is flexible and growth is continuing. This is treatment rather than prevention.

If pectus carinatum appears to be part of an inherited condition, genetic counselling may help a family understand the condition and how it can be passed on. It cannot guarantee that a future child will not develop a chest wall difference.

Living with it and what to expect

Pectus carinatum often becomes more prominent during rapid growth. Once skeletal growth is complete, the chest shape usually becomes more stable. It does not commonly disappear without treatment, but a mild projection may never cause physical problems.

Most people can take part in school, work, exercise, and sport without medical restrictions. Clothing choices or protective padding may help if the raised area is sensitive during contact activities.

Bracing can produce a substantial correction in many growing young people with a flexible chest wall. Progress is gradual and relies on regular wear, correct fitting, and follow-up. The result cannot be predicted from appearance alone. Some projection may remain, and recurrence can happen, especially if treatment ends before growth is complete.

Adults may still seek treatment because of discomfort or the effect on confidence. Their chest walls are usually less flexible, so bracing may be slower or less effective. Surgical assessment remains an option when the expected benefits justify the recovery and risks.

Emotional effects are worth taking seriously. Support may include speaking openly with family, meeting a chest wall team, or getting help for persistent anxiety, low mood, teasing, or avoidance. Treatment decisions should reflect your goals rather than pressure to meet a particular appearance.

When to get medical help

Arrange a routine appointment if you notice a new or increasing outward chest projection, especially during a growth spurt. Assessment is also appropriate if the shape causes pain, exercise difficulty, sleep problems, skin pressure, or distress about appearance.

Seek routine follow-up during bracing if the brace no longer fits, leaves persistent marks,

causes worsening pain, or seems less effective as you grow. Do not try to increase brace pressure on your own unless the brace team has shown you how.

Get prompt medical advice if you develop ongoing breathlessness, faintness during exercise, repeated palpitations, or a clear decline in stamina. These symptoms may need evaluation for causes unrelated to pectus carinatum.

Call emergency services for severe difficulty breathing, fainting, blue or grey lips, crushing or sudden severe chest pain, or chest symptoms after a major injury. These are not expected features of uncomplicated pectus carinatum and need urgent assessment.

Common questions

Is pectus carinatum dangerous?

It is usually not dangerous and does not typically harm the heart or lungs. Its main effects are chest appearance, tenderness, and possible emotional distress. New breathing problems, fainting, or severe pain should be assessed rather than assumed to come from the chest shape.

Will pectus carinatum go away on its own?

It usually does not disappear without treatment. It may become more noticeable during adolescence and then stabilise after growth ends. A mild projection can remain unchanged without causing health problems.

Can exercise fix pectus carinatum?

Exercise cannot push the breastbone or cartilage back into place. Strengthening the chest, shoulders, and back may improve posture, fitness, and how the chest looks overall. Exercise can support treatment but does not replace a brace when structural correction is wanted.

How long does a pectus carinatum brace take to work?

Treatment commonly takes months and may continue through growth. The time needed is influenced by chest flexibility, growth, the degree of projection, and how consistently the brace is worn. The brace team checks progress and adjusts the plan.

Can adults wear a pectus carinatum brace?

Some adults may try bracing, but an adult chest wall is usually more rigid than a growing child's chest. Correction may be slower or limited. A chest wall specialist can assess flexibility and discuss bracing, surgery, or no treatment.

Can pectus carinatum come back after treatment?

Yes. Recurrence is possible after bracing or surgery, particularly when growth is still

continuing. Maintenance bracing and planned follow-up may help preserve correction after active brace treatment.

Sources

- Boston Children's Hospital: Pectus Carinatum
- Children's Hospital of Philadelphia: Pectus Carinatum
- Royal Children's Hospital Melbourne: Pectus carinatum
- National Center for Biotechnology Information, StatPearls: Pectus Carinatum
- Martinez-Ferro M, Fraire C, Bernard S. Dynamic compression system for the correction of pectus carinatum. Seminars in Pediatric Surgery. 2008;17(3):194-200