CONDITION

Dextrocardia

Dextrocardia is a condition present from birth in which the heart points toward the right side of the chest.

WHAT IT IS
Heart positioned toward the right side of the chest

BODY SYSTEM
Heart and circulation; sometimes other organs

MAIN SYMPTOMS
No symptoms, breathlessness, poor feeding, bluish skin

WHAT CAUSES IT
Altered development before birth, sometimes genetic

HOW IT IS DIAGNOSED
Echocardiogram and chest imaging; ECG supports diagnosis

MAIN TREATMENT
Monitoring and treatment of associated organ problems

CAN IT BE CURED?
No - heart position remains lifelong

IS IT AN EMERGENCY?
Sometimes - severe breathing difficulty or fainting

LONG-TERM OUTLOOK
Often normal when isolated; associated defects shape health

Overview

Dextrocardia means that the heart points toward the right side of the chest instead of the left. It develops before birth and remains throughout life. It is a condition rather than an illness that can be caught or spread.

The heart may be a mirror image of a usual heart, or its internal chambers and blood vessels may have a more complex arrangement. The position of other organs also matters.

Doctors use several terms to describe these arrangements:

Dextrocardia is not the same as dextroposition . In dextroposition, another problem, such as lung disease or chest surgery, pushes an otherwise normally formed heart toward the right.

Some people have no related health problems and discover dextrocardia during an X-ray or

heart test for another reason. Others have congenital heart defects, meaning structural heart differences present from birth. Identifying the full organ arrangement is therefore more important than knowing the direction of the heart alone.

- Dextrocardia with situs inversus: The heart and many abdominal organs are arranged as a mirror image of their usual positions.
- Dextrocardia with situs solitus: The heart points right, but the abdominal organs are in their usual positions.
- Heterotaxy: Organs do not follow the usual or a complete mirror-image pattern. The heart, spleen, liver, lungs, and intestines may be affected differently.

Symptoms

Dextrocardia itself often causes no symptoms. A person with an uncomplicated mirror-image arrangement may have normal heart function.

When symptoms occur, they usually come from an associated heart, lung, or organ condition rather than from the heart's location. In a baby or child, possible signs include:

In adults, associated problems may cause breathlessness, reduced exercise tolerance, a racing or irregular heartbeat, fainting, or swelling in the legs or abdomen.

Repeated wet cough, sinus infections, ear problems, or bronchiectasis may suggest primary ciliary dyskinesia . In this inherited condition, microscopic hairs called cilia do not move mucus normally. When primary ciliary dyskinesia occurs with reversed organs, chronic sinus disease, and widened, damaged airways, it is sometimes called Kartagener syndrome.

Symptoms alone cannot show which form of dextrocardia is present. Imaging is needed to map the heart and other organs.

- Fast or difficult breathing
- Poor feeding or slow weight gain
- Tiring or sweating during feeds
- Bluish or gray lips, tongue, or skin
- Reduced stamina compared with other children
- Repeated chest, sinus, or ear infections

Causes and risk factors

Dextrocardia begins during early development in the womb. As the heart forms, it normally loops toward the left. In dextrocardia, it loops or points toward the right.

The exact reason is not always known. Some cases happen as an isolated developmental difference. Others are related to genetic changes that affect how the body's left and right sides are established before birth.

Dextrocardia may occur with:

Having a relative with heterotaxy, primary ciliary dyskinesia, or certain congenital heart conditions may raise the chance of a related condition. However, many people with dextrocardia have no known family history.

It is not caused by exercise, diet, stress, sleeping position, or anything a pregnant person did in ordinary daily life.

- Situs inversus
- Heterotaxy
- Primary ciliary dyskinesia
- Congenital differences in the heart's chambers, valves, or major blood vessels
- Differences in the spleen, intestines, lungs, or liver

Diagnosis

Dextrocardia may be found before birth during a prenatal ultrasound. After birth, it may be noticed during an examination, chest X-ray, or test performed for unrelated reasons.

An echocardiogram , also called a heart ultrasound, is central to diagnosis. It shows the direction of the heart and examines its chambers, valves, pumping function, and major blood vessels.

Other tests may include:

An ECG can look unusual when the heart is on the right. Incorrectly placed ECG leads can also imitate dextrocardia. Clinicians may repeat the test with leads positioned for right-sided anatomy.

Diagnosis should describe more than "the heart is on the right." It should establish how the heart is built, how well it works, where the other organs are, and whether the spleen functions normally.

- A chest X-ray to show the heart's position and provide information about the lungs

- An electrocardiogram, or ECG, to record the heart's electrical activity
- Abdominal ultrasound to locate organs such as the liver, spleen, and stomach
- CT or MRI scans when more detailed mapping is needed
- Blood oxygen measurement, particularly in newborns or people with symptoms
- Genetic testing when heterotaxy, primary ciliary dyskinesia, or an inherited syndrome is suspected

Treatment and management

An isolated, normally functioning right-sided heart may need no treatment. Some people only need documentation of their anatomy and occasional follow-up.

Treatment is directed at associated conditions. Depending on the findings, this may involve:

Not everyone with dextrocardia needs surgery or lifelong specialist appointments. The need for follow-up is based on heart structure, heart function, symptoms, and associated organ findings.

It is helpful to tell healthcare professionals about the condition before an ECG, operation, emergency assessment, or procedure involving the chest or abdomen. The location of the heart and organs can change how tests are placed and how procedures are planned.

Keeping a copy of an imaging report or a brief anatomy summary can be useful, particularly when receiving care from a new service.

- Monitoring by a cardiologist familiar with congenital heart conditions
- Medicines to manage heart failure, fluid buildup, or abnormal rhythms
- Catheter procedures or surgery for structural heart defects
- Airway-clearance treatment and infection management for primary ciliary dyskinesia
- Additional protection against infection when the spleen is absent or does not work properly
- Assessment and treatment of intestinal malrotation or other organ differences

Complications

Dextrocardia without other structural differences may cause no complications. When complications occur, they are usually linked to an associated condition.

Possible heart-related complications include abnormal heart rhythms, reduced pumping ability, low blood oxygen, or heart failure. People who have had congenital heart surgery may also need long-term checks for valve problems, rhythm changes, or narrowing of repaired blood vessels.

Heterotaxy can affect the spleen. An absent or poorly functioning spleen reduces protection against certain serious bacterial infections. Heterotaxy may also involve abnormal intestinal positioning, called malrotation, which can occasionally lead to twisting or blockage of the bowel.

Primary ciliary dyskinesia can cause long-term sinus, ear, and lung disease because mucus is not cleared effectively. Some people also have fertility problems because cilia and similar cell structures are involved in sperm movement and the transport of eggs through the fallopian tubes.

These complications are not present in everyone with dextrocardia. Imaging and other tests help identify which risks apply to a particular anatomy.

Prevention

Dextrocardia cannot usually be prevented. It develops very early before birth, and some forms are linked to inherited genetic changes.

If dextrocardia occurs with a known genetic condition, genetic counselling can explain how that condition may be inherited and discuss testing options. Counselling provides information rather than predicting with certainty what will happen in a future pregnancy.

Preventive care after diagnosis focuses on avoiding complications. This may include keeping planned heart appointments, following an airway-care plan for primary ciliary dyskinesia, and using a specific infection-prevention plan if spleen function is reduced.

Living with it and what to expect

Many people with isolated dextrocardia have no symptoms and live without limits caused by the position of their heart. The heart does not usually move back to the left, but its right-sided position may not affect strength, activity, work, pregnancy, or lifespan when its structure and function are otherwise normal.

The course is different when congenital heart defects, heterotaxy, or primary ciliary dyskinesia are present. Some heart differences are repaired in infancy or childhood, but later monitoring may still be needed. Other people require staged operations, rhythm treatment, or continued

support for reduced heart function.

Lung and sinus symptoms from primary ciliary dyskinesia tend to be long-term. Regular airway care and early attention to infections aim to protect lung function over time.

A child with dextrocardia may need follow-up adjusted as the body grows. Adults who had congenital heart treatment in childhood may benefit from care through an adult congenital heart service rather than a general heart clinic alone.

Exercise is often possible and beneficial, but safe limits are based on heart structure, oxygen levels, rhythm, and previous treatment. Dextrocardia alone does not automatically require activity restrictions.

Pregnancy may be well tolerated when the heart is structurally normal. People with complex congenital heart disease should have their individual heart risks reviewed before pregnancy because circulation changes place extra demands on the heart.

When to get medical help

Arrange routine medical follow-up if there are new but non-severe symptoms such as declining exercise tolerance, repeated palpitations, ankle swelling, persistent cough, frequent chest infections, or feeding and growth concerns in a child.

Seek urgent medical assessment for:

Call emergency services for severe breathing difficulty, collapse, unresponsiveness, or chest pain with sweating, nausea, breathlessness, or faintness. A right-sided heart does not make chest pain harmless. Pain from a heart problem may be felt in an unusual place, but it still needs prompt assessment.

- New or worsening shortness of breath
- Fainting or near-fainting
- A sustained fast or irregular heartbeat with weakness or dizziness
- New bluish or gray lips, tongue, or skin
- Severe or persistent abdominal pain, repeated vomiting, or a swollen abdomen
- Fever in someone known to have no spleen or poor spleen function

Common questions

Is dextrocardia dangerous?

Not by itself in many people. Risk comes mainly from associated heart defects, abnormal organ arrangement, reduced spleen function, or primary ciliary dyskinesia. Imaging helps separate uncomplicated dextrocardia from forms that need ongoing care.

Can you live a normal life with dextrocardia?

Many people with an isolated, normally functioning right-sided heart lead typical lives. People with complex congenital heart or lung conditions may need treatment and long-term follow-up, but the heart's direction alone does not determine the outlook.

Does dextrocardia mean all my organs are reversed?

No. Some people have a complete mirror-image arrangement called situs inversus. Others have normally placed abdominal organs or a mixed arrangement called heterotaxy. Chest and abdominal imaging can establish the pattern.

Can dextrocardia be fixed or moved to the left?

The heart is not normally moved simply because it points right. Treatment targets structural defects or other health problems. A well-functioning right-sided heart does not need repositioning.

Can I exercise with dextrocardia?

Dextrocardia alone may not limit exercise. Restrictions, if needed, are based on heart function, rhythm, oxygen levels, lung health, and previous operations rather than the side of the chest containing the heart.

Is dextrocardia hereditary?

It can be, but not always. Some cases are associated with inherited conditions such as primary ciliary dyskinesia or genetic causes of heterotaxy. Other cases occur without an identified genetic cause or family history.

Sources

- National Library of Medicine. Dextrocardia . MedlinePlus Medical Encyclopedia
- National Library of Medicine. Primary ciliary dyskinesia . MedlinePlus Genetics
- Shapiro AJ, Zariwala MA, Ferkol T, and colleagues. Diagnosis, monitoring, and treatment of primary ciliary dyskinesia: PCD Foundation consensus recommendations . Pediatric Pulmonology . 2016;51(2):115-132
- Maldjian PD, Saric M. Approach to dextrocardia in adults: review . American Journal of Roentgenology . 2007;188(6 Suppl):S39-S49



- Bohun CM, Potts JE, Casey BM, Sandor GGS. A population-based study of cardiac malformations and outcomes associated with dextrocardia . American Journal of Cardiology . 2007;100(2):305-309
- Centers for Disease Control and Prevention. About congenital heart defects . National Center on Birth Defects and Developmental Disabilities