If your child’s chest area appears to be caved in or bulging, it may be a sign of a chest wall deformity. While some deformities are cosmetic and pose no health concerns, more severe ones are linked to breathing problems, chest pains and heart issues. Chest wall deformities are more common in boys and Caucasians. They also run in families. Severe cases are often noticed at birth, but the deformity may worsen as a child develops, especially through puberty. Here is what you need to know about these deformities, when they should be treated and the most common procedures for correcting them.

What are chest wall deformities?
Chest wall deformities are structural issues with the ribs and cartilage. While these deformities are not preventable, they can be treated.

There are two types of chest wall deformities. One is called **pectus excavatum** or funnel chest. This is where the breastbone (sternum) is pushed inward. Sometimes, the two sides of the chest can appear uneven. This type of deformity can be mild to very severe. It’s not known why it occurs and can be associated with Marfan Syndrome (a connective tissue disorder) and Poland Syndrome (a rare birth defect where chest muscle is absent or underdeveloped). Many children and adults with pectus excavatum don’t have symptoms, but may be self-conscious of their appearance. Some children may experience symptoms. These can include breathing problems because there is less room for their lungs to expand, or chest pains because their heart might be compressed or displaced.

The second type of chest deformity is known as **pectus carinatum** or pigeon breast. This is because the chest sticks out, similar to a bird’s chest. It is much less common than other chest defects. Similar to funnel chest, many children with this deformity do not have symptoms, but are self-conscious about their appearance. Some may experience symptoms, including chest pains, breathing or heart problems.

How can these deformities be treated?
For both types of chest wall deformities, minor cases are monitored and no medical treatment is needed. However, some families may ultimately opt for cosmetic procedures to correct the deformity.

For children with pectus excavatum, sometimes physical therapy can slow the development or potentially reverse the deformity. Surgery may be needed to improve a child’s breathing, posture and heart function. There are two types of surgery:

- The Ravitch Procedure involves removing extra rib cartilage and inserting two steel bars into the chest. These bars are removed later in an outpatient procedure.
- The Nuss Procedure involves the placement of a single steel bar in the chest, but usually does not involve any cartilage removal. The bar is not visible from the outside and stays in place for two to four years before being removed in an outpatient procedure. Follow-up studies over 15 years show that the Nuss Procedure provides excellent results with less than five percent of the deformity reappearing.

For pectus carinatum, treatment options include non-surgical bracing and surgery. Because the chest wall remains relatively flexible in young people until they reach early adulthood, wearing a brace can help remold the chest wall into a normal shape. If surgery is needed, it could include removing portions of the breastbone and rib cartilage to reconstruct the chest wall or the placement of a steel bar, similar to the Nuss Procedure.

When should my child see a specialist?
Visiting a specialist while your child is very young may help you understand whether your child has a mild, moderate or severe deformity. After your physician completes a health history, a thorough physical exam, chest measurements and photographs, children whose conditions are considered severe enough to warrant surgery may have additional tests, including a CT scan, to evaluate the condition of their heart and lungs, as well as the severity of their deformity.

Unless your child has a severe deformity, physical therapy or bracing would wait until he or she is more than six years old. Surgery is more likely during the teen years after most growth spurts have ended.