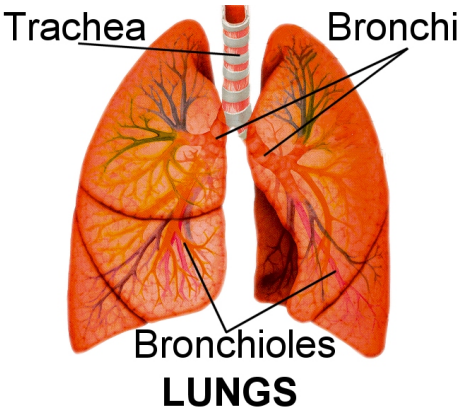
# Reactive Airway Disease in Children

Reactive airway disease (RAD) is a condition where your lungs have overreacted to something and caused you to wheeze. As many as 15% of children will experience wheezing in the first year of life and as many as 25% may report a wheezing illness before their 5th birthday.




Many people believe that wheezing problems in a child means the child has the disease asthma. This is not always true. Because not all wheezing is asthma, the term reactive airway disease is often used until a diagnosis is made. A diagnosis of asthma is based on a number of different factors and made by your doctor. The more you know about this illness the better you will be prepared to handle it. Reactive airway disease cannot be cured, but it can usually be prevented and controlled.

## CAUSES

For reasons not completely known, a trigger causes your child's airways to become overactive, narrowed, and inflamed.

Some Common Triggers Are:

- Allergens (things that cause allergic reactions or allergies).
- Infection (usually viral) commonly triggers attacks. Antibiotics are not helpful for viral infections and usually do not help with attacks.
- Certain pets.
- Pollens, trees, and grasses.
- Certain foods.
- Molds and dust.
- Strong odors.
- Exercise can trigger an attack.
- Irritants (for example, pollution, cigarette smoke, strong odors, aerosol sprays, paint fumes) may trigger an attack. SMOKING CANNOT BE ALLOWED IN HOMES OF CHILDREN WITH REACTIVE AIRWAY DISEASE.
- Weather changes - There does not seem to be one ideal climate for children with RAD. Trying to find one may be disappointing. Moving often does not help. In general:
  - Winds increase molds and pollens in the air.
  - Rain refreshes the air by washing irritants out.
  - Cold air may cause irritation.
- Stress and emotional upset - Emotional problems do not cause reactive airway disease, but they can trigger an attack. Anxiety, frustration, and anger may produce attacks. These emotions may also be produced by attacks, because difficulty breathing naturally causes anxiety.

**Other Causes Of Wheezing In Children**

While uncommon, your doctor will consider other cause of wheezing such as:

- Breathing in (*inhaling*) a foreign object.
- Structural abnormalities in the lungs.
- Prematurity.
- Vocal chord dysfunction.
- Cardiovascular causes.
- Inhaling stomach acid into the lung from gastroesophageal reflux or GERD.
- Cystic Fibrosis.

Any child with frequent coughing or breathing problems should be evaluated. This condition may also be made worse by exercise and crying.

## SYMPTOMS

During a RAD episode, muscles in the lung tighten (*bronchospasm*) and the airways become swollen (*edema*) and inflamed. As a result the airways narrow and produce symptoms including:

- Wheezing is the most characteristic problem in this illness.
- Frequent coughing (with or without exercise or crying) and recurrent respiratory infections are all early warning signs.
- Chest tightness.
- Shortness of breath.

While older children may be able to tell you they are having breathing difficulties, symptoms in young children may be harder to know about. Young children may have feeding difficulties or irritability. Reactive airway disease may go for long periods of time without being detected. Because your child may only have symptoms when exposed to certain triggers, it can also be difficult to detect. This is especially true if your caregiver cannot detect wheezing with their stethoscope.

### Early Signs of Another RAD Episode

The earlier you can stop an episode the better, but everyone is different. Look for the following signs of an RAD episode and then follow your caregiver's instructions. Your child may or may not wheeze. Be on the lookout for the following symptoms:

- Your child's skin "sucking in" between the ribs (*retractions*) when your child breathes in.
- Irritability.
- Poor feeding.
- Nausea.
- Tightness in the chest.
- Dry coughing and non-stop coughing.
- Sweating.
- Fatigue and getting tired more easily than usual.

## DIAGNOSIS

After your caregiver takes a history and performs a physical exam, they may perform other tests to try to determine what caused your child's RAD. Tests may include:

- A chest x-ray.
- Tests on the lungs.
- Lab tests.
- Allergy testing.

If your caregiver is concerned about one of the uncommon causes of wheezing mentioned above, they will likely perform tests for those specific problems. Your caregiver also may ask for an evaluation by a specialist.

## HOME CARE INSTRUCTIONS

- Notice the warning signs (see Early Sings of Another RAD Episode).
- Remove your child from the trigger if you can identify it.
- Medications taken before exercise allow most children to participate in sports. Swimming is the sport least likely to trigger an attack.
- Remain calm during an attack. Reassure the child with a gentle, soothing voice that they will be able to breathe. Try to get them to relax and breathe slowly. When you react this way the child may soon learn to associate your gentle voice with getting better.
- Medications can be given at this time as directed by your doctor. If breathing problems seem to be getting worse and are unresponsive to treatment seek immediate medical care. Further care is necessary.
- Family members should learn how to give adrenaline (EpiPen®) or use an anaphylaxis kit if your child has had severe attacks. Your caregiver can help you with this. This is especially important if you do not have readily accessible medical care.

- Schedule a follow up appointment as directed by your caregiver. Ask your child's care giver about how to use your child's medications to avoid or stop attacks before they become severe.
- Call your local emergency medical service (911 in the U.S.) immediately if adrenaline has been given at home. Do this even if your child appears to be a lot better after the shot is given. A later, delayed **reaction may develop which can be even more severe.**

SEEK MEDICAL CARE IF:

- There is wheezing or shortness of breath even if medications are given to prevent attacks.
- An oral temperature above 102° F (38.9° C) develops, or as your caregiver suggests.
- There are muscle aches, chest pain, or thickening of sputum.
- The sputum changes from clear or white to yellow, green, gray, or bloody.
- There are problems that may be related to the medicine you are giving. For example, a rash, itching, swelling, or trouble breathing.

**SEEK IMMEDIATE MEDICAL CARE IF:**

- The usual medicines do not stop your child's wheezing, or there is increased coughing.
- Your child has increased difficulty breathing.
- Retractions are present. Retractions are when the child's ribs appear to stick out while breathing.
- Your child is not acting normally, passes out, or has color changes such as blue lips.
- There are breathing difficulties with an inability to speak or cry or grunts with each breath.

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