

Additional suggestions:

- Have your child or teenager eat smaller meals more often.
- Avoid eating 2 to 3 hours before bed.
- Elevate the head of the bed 30 degrees.
- Avoid carbonated drinks, chocolate, caffeine, and foods that are high in fat, or contain a lot of acid (citrus) or spices.

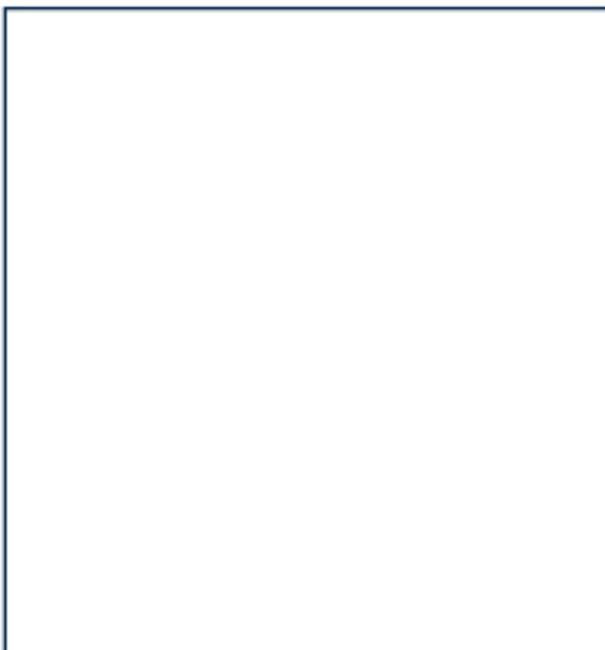
Speak with your child's healthcare provider if any of the following occur:

- Increased amounts of vomiting or persistent projectile (forceful) vomiting.
- Vomiting of fluid that is green or yellow in color, or appears like coffee grounds or blood.
- Difficulty breathing associated with vomiting or spitting.
- Pain related to eating, or food refusal causing weight loss or poor weight gain.
- Trouble swallowing or painful swallowing.

For more information, please call us toll free at 1-800-461-8911 or visit our Web sites at: www.NASPGHAN.org, www.CDHNF.org, www.KidsAcidReflux.org and www.TeensAcidReflux.org

IMPORTANT REMINDER: This information from the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN) and the Children's Digestive Health and Nutrition Foundation (CDHNF) is intended only to provide general information and not as a definitive basis for diagnosis or treatment in any particular case. It is very important that you consult your doctor about your specific condition.

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Gastroesophageal Reflux In Children and Adolescents



NASPGHAN
NORTH AMERICAN SOCIETY FOR PEDIATRIC GASTROENTEROLOGY,
HEPATOLOGY AND NUTRITION

CDHNF
Children's Digestive Health and Nutrition Foundation

APGNN
The Association of Pediatric Gastroenterology
and Nutrition Nurses

What is Gastroesophageal Reflux?

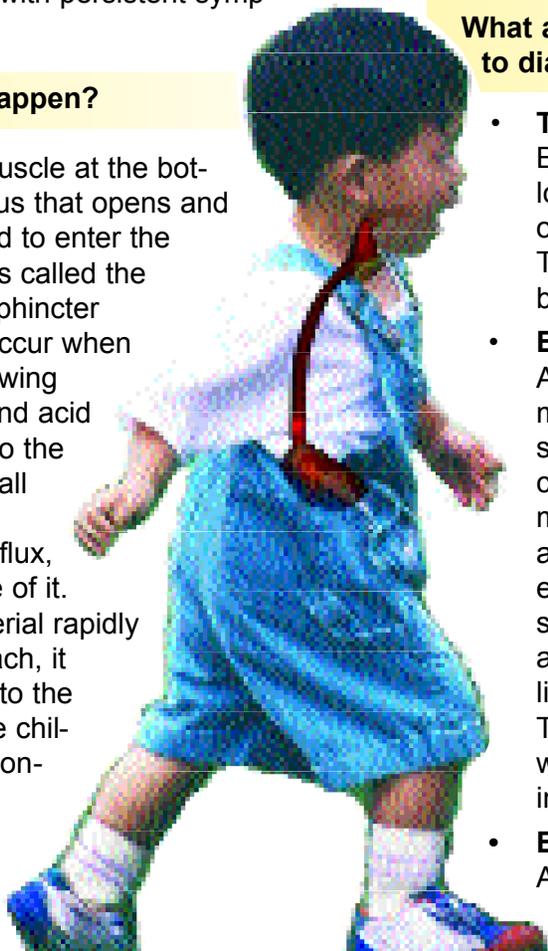
Gastroesophageal Reflux (GER) occurs when stomach contents go up into the esophagus (the tube that connects the mouth to the stomach), during or after a meal. In some children, the stomach contents go up the mouth (regurgitation) and are swallowed again. Other symptoms include hoarseness, recurrent pneumonia, cough, wheezing and difficulty or painful swallowing.

How common is reflux?

GER often begins in infancy, but only a small number of infants continue to have GER as older children. Evaluation by a physician is advised for anyone with persistent symptoms of GER.

Why does reflux happen?

There is a ring of muscle at the bottom of the esophagus that opens and closes, allowing food to enter the stomach. This ring is called the lower esophageal sphincter (LES). Reflux can occur when the LES opens, allowing stomach contents and acid to come back up into the esophagus. Almost all children and adults have a little bit of reflux, without being aware of it. When refluxed material rapidly returns to the stomach, it causes no damage to the esophagus. In some children, the stomach contents remain in the esophagus causing damage to the



esophagus lining. When the refluxed material passes into the back of the mouth or enters the airways, the child may become hoarse, have a raspy voice or a chronic cough.

How does your health care provider know your child has reflux?

The doctor or nurse can talk with you about your child's symptoms, do a physical examination and recommend tests to determine if reflux is the cause of symptoms. These tests check the esophagus, stomach and small intestine to see if there are any problems. However, treatment is sometimes started without the need for any tests.

What are the most common tests used to diagnose GER?

- **The Upper GI Series X-ray:** Barium (a chalky drink) is swallowed and X-rays show the shape of the esophagus and stomach. This test can find a hiatal hernia, blockage and other problems.
- **Endoscopy:** After the patient is given a sedative medication so they are asleep, a small flexible tube with a very tiny camera is inserted through the mouth and down into the esophagus and stomach. The lining of the esophagus, stomach and part of the small intestine can be examined and biopsies (small pieces of the lining) can be painlessly obtained. The biopsies can later be examined with a microscope, looking for inflammation and other problems.
- **Esophageal pH Probe:** A thin light wire with an acid sensor

at its tip is inserted through the nose into the lower part of the esophagus. The probe then detects and records the amount of stomach acid coming back up into the esophagus, and can tell if there is acid in the esophagus when the child has symptoms such as crying, arching or coughing.

How is reflux treated?

The treatment of reflux depends upon the child's symptoms and age. When a child or teenager is uncomfortable, or has difficulty sleeping, eating or growing, the doctor or nurse may first suggest a trial of medication. Medications used to treat reflux aim to decrease the amount of acid made in the stomach. One class of medications is H2-blockers such as cimetidine (Tagamet), ranitidine (Zantac), famotidine (Pepcid) and nizatidine (Axid). Another class is proton-pump inhibitors such as esomeprazole (Nexium), omeprazole (Prilosec), lansoprazole (Prevacid), rabeprazole (Aciphex) and pantoprazole (Protonix).

If the child continues to have symptoms despite the initial treatment, tests may be ordered to help find better treatments. It is rare for children to require surgery for GER. However, surgery may be the best option for children who have severe symptoms that do not respond to any treatment.

Your child's doctor or nurse can discuss the treatment options with you and help your child feel well again.

