

intestinal pseudo-obstruction. If you take a prokinetic like metoclopramide (Reglan®), be careful to follow the directions on the prescription label. The FDA recommends that the use of metoclopramide should be for a maximum period of 3 months; the dose should be kept as low as possible (e.g., total 30 mg per day to avoid side effects). Other medications include erythromycin 80–240 mg three times a day (for short-term use) and pyridostigmine 30 mg every 4 hours. In some countries, a generalized gastrointestinal and colonic prokinetic, prucalopride, is approved but it has not been proven to be efficacious in treating pseudo-obstruction. Rarely, subcutaneous injections of octreotide (25–50 µg) may be administered before bedtime, at least 2 hours after the last meal.

### What happens if the treatment fails?

If the treatment fails and you are admitted to a hospital with frequent bouts of symptoms that suggest intestinal obstruction, a tube may be placed into your stomach to remove accumulated food and fluid. If you cannot get enough nutrition by mouth, you may need to be fed directly into the intestine or, rarely, directly into the veins (total parenteral nutrition).

### Does surgery have a role in the treatment of pseudo-obstruction?

Surgery should be avoided, if possible, because it may lead to adhesions and further obstruction.

However, certain conditions may need surgery, preferably by laparoscopy to try to avoid adhesions.

- Surgery may be needed to be sure there is no obstruction.
- Surgery may be needed to remove diseased portions of intestine, such as a severely distended segment of small bowel or colon if it is the only section that is affected.
- Finally, surgery may be needed for people who are eligible for intestinal transplantation.

### Are there any new or experimental therapies?

Many new medicines for improving stomach function are being tested. These medicines may also work for chronic intestinal pseudo-obstruction, but they have not yet been tested in pseudo-obstruction.

The use of stem cells to replace lost nerve cells in the intestine and the use of growth factors to stimulate the development of such stem cells that are dormant in the intestine are two new experimental approaches but they are not yet being applied in human research.

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For a list of doctors in your area who specialize in gastrointestinal motility problems, go to our web site:

[www • motilitysociety • org](http://www.motilitysociety.org)

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Founded in 1980, the American Neurogastroenterology and Motility Society (ANMS) is a national organization dedicated to the study, training, and practice of gastrointestinal motility and neurogastroenterology. ANMS represents a broad group of academic and practicing physicians, scientists, trainees, technicians, and nurses. ANMS seeks to foster excellence in patient care and research, and to promote a better understanding and cure of disorders that affect gastrointestinal motility and function.

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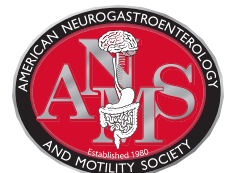
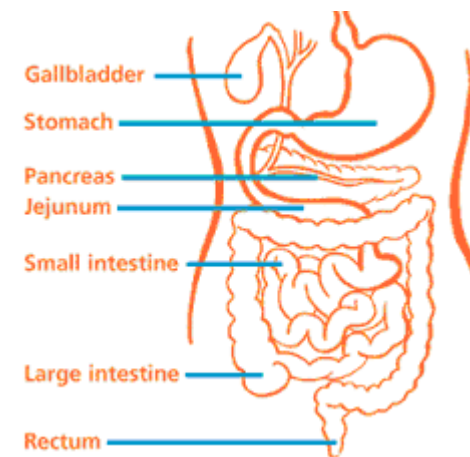
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# Chronic Intestinal Pseudo-obstruction

An educational brochure for patients



American Neurogastroenterology and Motility Society

## What is chronic intestinal pseudo-obstruction?

Chronic intestinal pseudo-obstruction is a rare bowel problem that affects the muscles and nerves of either the small bowel or the large bowel (colon). A normal bowel moves food and undigested waste through the digestive tract and gets rid of it as stool. The bowel muscles of people with intestinal pseudo-obstruction have grown weak to the point where they cannot move waste or gas normally. As a result, stool and gas collect in the bowel, leading to distention of the bowel and the belly. The symptoms are similar to those felt by people with bowel blockage, but in intestinal pseudo-obstruction, there is no physical obstruction or blockage.

## What are the symptoms?

People with chronic intestinal pseudo-obstruction have one or more of the following symptoms:

- nausea
- vomiting
- bloating
- early fullness (feel full after eating very little; often can't finish a meal)
- abdominal pain and distention
- constipation
- less frequently, diarrhea and weight loss



These symptoms are similar to those seen in other conditions where the bowel muscles are not working properly, such as gastroparesis. Some people have both conditions at the same time. People with chronic pseudo-obstruction that affects the colon may have constipation, distention, and excessive gas. An X-ray may show distended segments of bowel, which suggests physical blockage of the intestine, but in chronic pseudo-obstruction there is no actual obstruction.

## What causes this disorder?

Chronic intestinal pseudo-obstruction results from a disorder that affects the function of the nerves, the muscles, or the pacemaker cells of the intestine (interstitial cells of Cajal). It may be the result of a congenital illness (an illness you are born with), or it may be the result of an inflammatory, infectious, or degenerative disease. Sometimes pseudo-obstruction is associated with a generalized disorder that affects nerve or muscle function in other parts of the body. Research suggests that the loss of pacemaker cells may cause chronic intestinal pseudo-obstruction.

## What are the complications of chronic pseudo-obstruction?

- Malnutrition, weight loss, feeding problems, infection of the small bowel due to bacteria, diarrhea, and loss of fat and fat-soluble vitamins
- Rarely, the distended segments of bowel may twist on themselves, causing obstruction or perforation (a tear in the bowel wall that leads to leakage of intestinal contents into the abdominal cavity, needing urgent surgery).
- Small pockets called diverticula may develop along the bowel wall. Bacteria can grow in these pockets and cause gas, bloating, and malabsorption of food, including fat and vitamins.

## What are the common tests for pseudo-obstruction?

The first step is to be sure there is no obstruction. You may need an upper endoscopy to look at the esophagus, a barium X-ray, a small bowel X-ray, CT enterography, a CAT scan, or some other study. CT enterography is a special X-ray that measures how much the intestine is distended. It can also tell if there are complications, such as diverticulosis.

You may also need tests to see how food moves through your stomach, small bowel, and colon. Stomach function is usually measured by asking you to eat an egg sandwich meal with a radioisotope and then tracking how long it takes for



the meal to empty from your stomach. This test is called gastric scintigraphy or a gastric emptying test. Small bowel movement can be measured by tracking the movement of the radioisotope in the egg sandwich meal, or with breath tests. Movement in the colon is usually measured by tracking the movement of swallowed plastic markers on an X-ray.

Small bowel manometry is sometimes required to aid in the diagnosis, aid in planning the best way to provide nutrition, identify bacterial overgrowth by aspiration of intestinal fluid, or assess the prognosis. For example, manometry provides clues as to whether the problem affects the nerves or muscles of the small bowel. Diseases that affect the muscle are associated with weak contractions of the bowel muscle, whereas if the nerves are affected, the strength of the contractions is normal, but the pattern is disorganized.

Your doctor may suggest a breath test to see if there is too much bacteria in the small bowel.

Rarely, biopsy of the affected part of the intestine is needed to study the nerves and muscles under a microscope. This requires keyhole (laparoscopy) or open surgery.

## What are the first steps to treat chronic pseudo-obstruction?

The first steps are to make sure you are not dehydrated and that you can eat normally, without a feeding tube. You may need to take medicine to improve nausea and vomiting, and a prokinetic medicine to stimulate contractions of the stomach and small bowel muscles. You may need antibiotics if there is too much bacteria in the small bowel. Typical antibiotics used are co-trimoxazole, neomycin, metronidazole, doxycycline, and rifaximin. To keep the bacteria from becoming resistant to the antibiotics, these medicines are often used in rotation for a few days or 1 or 2 weeks every month.

The choice of prokinetics is limited because none have been proven to work for chronic