



Official reprint from UpToDate®
www.uptodate.com ©2014 UpToDate®



The content on the UpToDate website is not intended nor recommended as a substitute for medical advice, diagnosis, or treatment. Always seek the advice of your own physician or other qualified health care professional regarding any medical questions or conditions. The use of this website is governed by the [UpToDate Terms of Use](#) ©2014 UpToDate, Inc.

Patient information: Chronic pancreatitis (Beyond the Basics)

Author

Steven D Freedman, MD, PhD

Section Editor

J Thomas Lamont, MD

Deputy Editor

Shilpa Grover, MD, MPH

All topics are updated as new evidence becomes available and our [peer review process](#) is complete.

Literature review current through: Aug 2014. | **This topic last updated:** Jun 25, 2013.

PANCREATITIS OVERVIEW — The pancreas is an organ in the abdomen ([figure 1](#)). It is responsible for producing digestive juices and certain hormones, including insulin, which is responsible for regulating your blood sugar.

Chronic pancreatitis occurs when the pancreas becomes damaged by long-standing inflammation. Inflammation changes the pancreas' ability to function normally. People with chronic pancreatitis require ongoing medical care to minimize their symptoms, slow the damage to the pancreas, and address any complications that arise. In most cases, treatment controls but does not cure the underlying problem.

This article discusses chronic pancreatitis. Acute (sudden onset) pancreatitis is discussed separately. (See "[Patient information: Acute pancreatitis \(Beyond the Basics\)](#)".)

PANCREATITIS CAUSES — Some of the most common causes of chronic pancreatitis include:

- Alcohol abuse (the most common cause)
- Hereditary pancreatitis
- Blockage of the pancreatic duct (eg, from trauma, stones, tumors)
- Other diseases, such as lupus
- Cystic fibrosis or mutations of the cystic fibrosis gene

PANCREATITIS SYMPTOMS — The most common symptom of chronic pancreatitis is long-standing pain in the middle of the abdomen. You may also have episodes when the pancreas suddenly becomes inflamed and your pain suddenly worsens (called acute pancreatitis). (See "[Patient information: Acute pancreatitis \(Beyond the Basics\)](#)".)

People with chronic pancreatitis can have difficulty digesting fats in foods; this can lead to weight loss and occasionally diarrhea. In severe cases, the pancreas loses its ability to produce enough insulin, leading to diabetes.

Abdominal pain — Abdominal pain usually occurs in the upper abdomen, often spreads to the back, may be relieved by sitting up or leaning forward, and may be associated with nausea and vomiting. The pain is often worse 15 to 30 minutes after a meal. However, about 20 percent of people with chronic pancreatitis do not have any pain at all.

Poor pancreatic function — The pancreas normally helps to digest foods and control blood sugar levels. In people with chronic pancreatitis, the pancreas may not function normally, leading to difficulty processing fat in the diet. This can cause loose, greasy, foul-smelling stools that are difficult to flush. This can lead to vitamin and nutrient deficiencies, including weight loss. These symptoms do not usually develop until the pancreas loses about 90 percent of its function.

PANCREATITIS COMPLICATIONS — Chronic pancreatitis can lead to a variety of complications, including the following (see "[Complications of chronic pancreatitis](#)"):

- Blockage of the ducts that drain the pancreas and gallbladder, which can lead to jaundice (yellowing of the skin) and bouts of worsening pancreatitis
- Blockage of the upper intestine
- An increased risk of pancreatic cancer

PANCREATITIS DIAGNOSIS — It can be difficult to diagnose chronic pancreatitis; the signs and symptoms can be similar to those caused by other health problems, such as an ulcer, gallstones, irritable bowel syndrome, or even pancreatic cancer.

Tests may be normal, especially during the first two to three years of the condition. It can also be difficult to distinguish chronic pancreatitis from acute pancreatitis.

Blood tests — Blood tests can detect digestive enzymes that leak out of the pancreas into the bloodstream when the pancreas is inflamed. (See "[Clinical manifestations and diagnosis of chronic pancreatitis in adults](#)".)

Stool tests — Stool tests can detect abnormal levels of fat in a stool sample.

Imaging tests — Imaging tests such as x-ray, ultrasound, CT scan, or MRI provide information about the structure of the pancreas, the ducts that drain the pancreas and gallbladder, and the tissues surrounding the pancreas.

Other tests, such as endoscopic retrograde cholangiopancreatography (ERCP) or endoscopic ultrasound, are tests that can outline the areas that drain the pancreas and gallbladder. These tests are performed by passing a tube through the mouth into the digestive tract. (See "[Patient information: ERCP \(endoscopic retrograde cholangiopancreatography\) \(Beyond the Basics\)](#)" and "[Endoscopic ultrasound in chronic pancreatitis](#)".)

Tests for pancreatic cancer — Some of the tests for chronic pancreatitis can help to determine the likelihood of having pancreatic cancer. These tests may be done because the signs of chronic pancreatitis and pancreatic cancer are similar.

Blood levels of two tumor markers, carcinoembryonic antigen (CEA) and CA 19-9, are the most commonly used blood tests.

PANCREATITIS TREATMENT — Treatment of chronic pancreatitis can help to relieve pain, improve pancreatic function, and manage complications. (See "[Treatment of chronic pancreatitis](#)".)

Pain relief — A variety of measures can help relieve the pain of chronic pancreatitis. Simple measures may be sufficient early in the course of the condition, whereas more extensive measures may be needed after several years.

- Avoiding alcohol – Avoiding alcohol is **the single MOST important treatment** for people with pancreatitis related to alcohol abuse. Avoiding alcohol can improve pain and reduce the risk of acute pancreatitis as well as the risk of dying.
- Low-fat meals – The pain of chronic pancreatitis may be reduced by eating small, low-fat meals and drinking enough fluids. Fasting (not eating) for several days may alleviate the pain of chronic pancreatitis; this is usually done in the hospital so that you can be given nutrients in IV fluids.
- Pain medication – Early in the course of chronic pancreatitis, nonprescription pain medications usually control pain. These drugs include nonsteroidal antiinflammatory drugs (NSAIDs), such as [ibuprofen](#).
- Pancreatic enzyme supplements – Pancreatic enzyme supplements are often recommended to relieve pain caused by pancreatitis. These enzymes replace the enzymes normally produced by the pancreas, allowing the

pancreas to "rest." However, these enzymes do not relieve pain in all people.

- Narcotic pain medicines – Narcotic pain medicines are powerful pain-relieving drugs that require a prescription. These drugs are often recommended if pancreatic enzymes do not relieve pain.

However, a major problem with narcotic medicines is that some people become addicted to them and thus crave them even when they do not have pain. Thus, most clinicians use them sparingly.

- Nerve block – During a nerve block, an injection is given directly into the nerves that carry pain messages from the pancreas.

Nerve blocks relieve pain in about 50 percent of people who undergo the procedure. Many people require additional treatments two to six months after the first treatment. The procedure also carries risks that should be discussed with a clinician. For this reason, nerve blocks are usually reserved for people with severe pancreatic pain that does not respond to other types of treatment.

- Treatments that widen the pancreatic ducts – Chronic pancreatitis can cause pain if there is narrowing of the pancreatic ducts and the muscle that closes the duct shared by the pancreas and gallbladder. This narrowing can block secretions from the pancreas. The back-up of fluid in the pancreatic ducts leads to pain and inflammation of the pancreas. One way to treat this is to place a tube into the narrowed area (called stenting).

During stenting, a stiff plastic tube (called a stent) is placed inside the pancreatic duct to hold it open. Stents can relieve pain in people who have narrowing of the pancreatic duct or pancreatic stones lodged in the duct. However, stenting has risks. Thus, it is probably only useful for a small percentage of people with chronic pancreatitis. (See "[Overview of pancreatic stenting and its complications](#)".)

- Pancreatic lithotripsy – Pancreatic lithotripsy refers to a procedure in which shock waves are used to break up stones that have become lodged in the pancreatic duct. This helps to improve the flow of digestive juices. The procedure is available in Europe and in a few centers in the United States.

Surgery — Surgery is usually reserved for people with chronic pancreatitis who have pain that does not respond to other treatments. The best time to have surgery is debated. Some studies suggest that early surgery slows the progression of chronic pancreatitis, while others suggest that the condition worsens even in people who have surgery early. (See "[Treatment of chronic pancreatitis](#)".)

At this time, doctors usually recommend surgery for people with chronic pancreatitis who have pain that does not respond to other treatments and who have dilated pancreatic ducts. Three surgical procedures are available; two of these procedures have been used for many years, whereas one procedure (autologous islet transplantation) is considered to be experimental.

- Relieve blockage – A surgical procedure called pancreaticojejunostomy relieves blockage and pressure in the pancreatic ducts. It alleviates pain in about 80 percent of people. For unknown reasons, pain returns within one year in some people who undergo this procedure.
- Remove part of the pancreas – Removing part of the pancreas relieves pain in some people with chronic pancreatitis.
- Remove the pancreas and transplant islet cells – Simply removing the pancreas is not a feasible treatment because the pancreas performs many important functions. One of the most important functions of the pancreas is producing insulin. An experimental treatment for pancreatitis involves removing the entire pancreas and then replacing the insulin-producing structures (called islets).

Treatment of greasy stools and digestive problems — Several treatments are available for people who do not absorb enough fat and/or have excessive fat in the stools.

- Reducing fat intake – Reducing the amount of fat in the diet can reduce the amount of fat in the stools, causing them to be less greasy. Restricting fat intake to 20 grams per day or less may be recommended.
- Lipase supplements – Dietary supplements that contain the enzyme lipase can reduce greasy stools and help the body to digest fat. These supplements partially replace the lipase normally produced by the pancreas.
- [Medium chain triglycerides](#) (MCTs) – Medium chain triglycerides, a form of dietary fat, are more easily digested and absorbed than the long chain triglycerides found in most foods. MCTs are available as an oil that can be mixed with fruit juice. MCTs are a good source of calories for people with chronic pancreatitis who have lost weight and who do not respond to dietary changes or pancreatic enzyme supplements.

WHERE TO GET MORE INFORMATION — Your healthcare provider is the best source of information for questions and concerns related to your medical problem.

This article will be updated as needed on our Web site (www.uptodate.com/patients). Related topics for patients, as well as selected articles written for healthcare professionals, are also available. Some of the most relevant are listed below.

Patient level information — UpToDate offers two types of patient education materials.

The Basics — The Basics patient education pieces answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials.

[Patient information: Pancreatitis \(The Basics\)](#)

[Patient information: Gallbladder removal \(cholecystectomy\) \(The Basics\)](#)

Beyond the Basics — Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are best for patients who want in-depth information and are comfortable with some medical jargon.

[Patient information: Acute pancreatitis \(Beyond the Basics\)](#)

[Patient information: Gallstones \(Beyond the Basics\)](#)

[Patient information: Irritable bowel syndrome \(Beyond the Basics\)](#)

[Patient information: Pancreatic cancer \(Beyond the Basics\)](#)

[Patient information: ERCP \(endoscopic retrograde cholangiopancreatography\) \(Beyond the Basics\)](#)

Professional level information — Professional level articles are designed to keep doctors and other health professionals up-to-date on the latest medical findings. These articles are thorough, long, and complex, and they contain multiple references to the research on which they are based. Professional level articles are best for people who are comfortable with a lot of medical terminology and who want to read the same materials their doctors are reading.

[Clinical manifestations and diagnosis of chronic pancreatitis in adults](#)

[Complications of chronic pancreatitis](#)

[Etiology and pathogenesis of chronic pancreatitis in adults](#)

[Treatment of chronic pancreatitis](#)

[Endoscopic ultrasound in chronic pancreatitis](#)

[Overview of pancreatic stenting and its complications](#)

The following organizations also provide reliable health information.

- National Library of Medicine
(www.nlm.nih.gov/medlineplus/ency/article/000221.htm)
- National Institute of Diabetes and Digestive and Kidney Diseases
(digestive.niddk.nih.gov/ddiseases/pubs/pancreatitis/index.htm)
- American Gastroenterological Association
(www.gastro.org/patient-center/digestive-conditions/pancreatitis)
- National Pancreas Foundation
(pancreasfoundation.org/aboutpancreatitis)

[1,2]

Use of UpToDate is subject to the [Subscription and License Agreement](#).

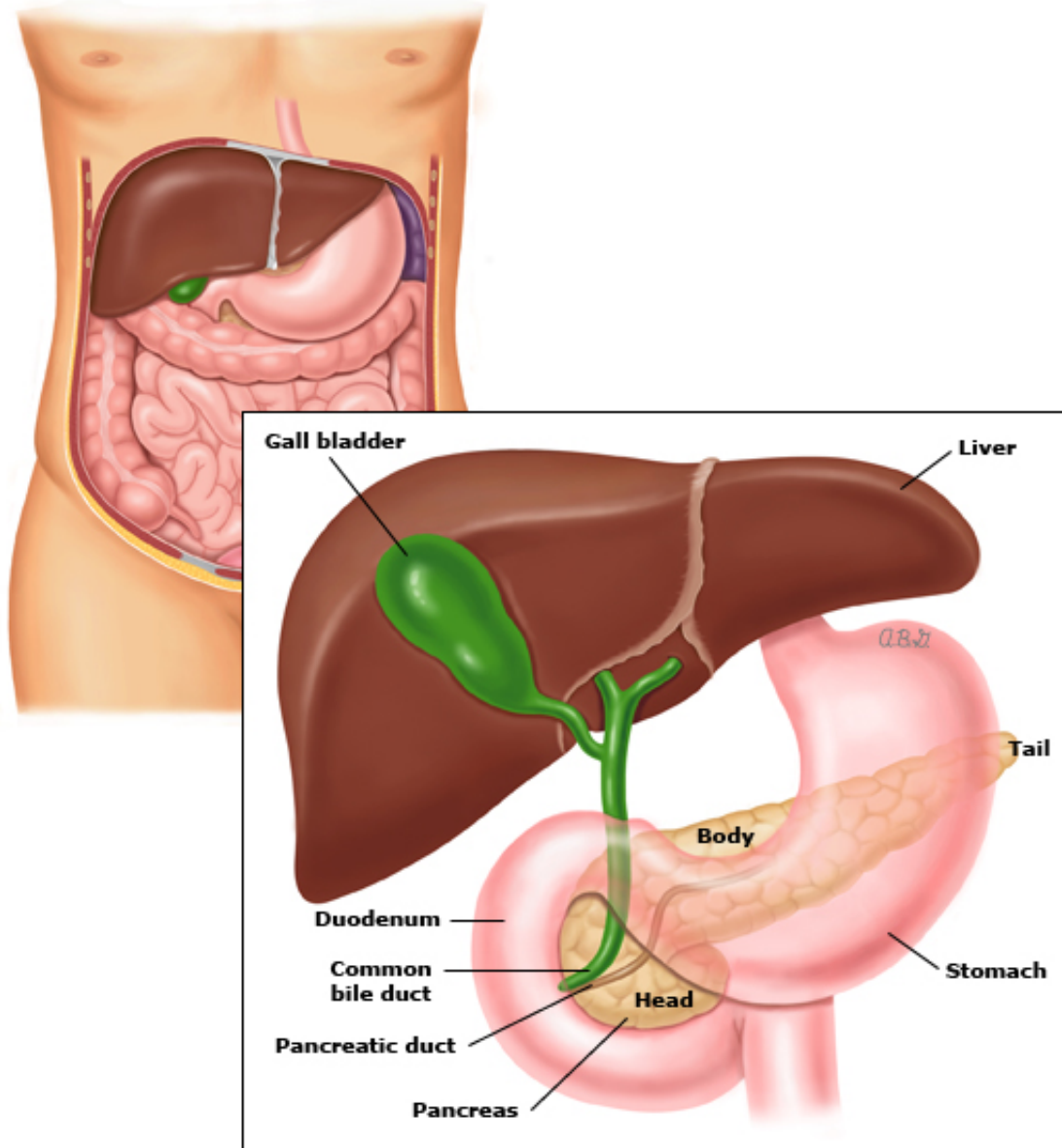
REFERENCES

1. Singh VV, Toskes PP. Medical therapy for chronic pancreatitis pain. *Curr Gastroenterol Rep* 2003; 5:110.
2. Warshaw AL, Banks PA, Fernández-Del Castillo C. AGA technical review: treatment of pain in chronic pancreatitis. *Gastroenterology* 1998; 115:765.

Topic 2001 Version 11.0

GRAPHICS

Pancreas anatomy



The pancreas is a combination exocrine and endocrine organ. Exocrine tubuloacinar glands are responsible for secreting the digestive juices into the pancreatic ducts and subsequently the gastrointestinal tract. Approximately 1 million Islets of Langerhans responsible for the endocrine function of the pancreas are distributed throughout the exocrine pancreas. Beta and alpha cells of the endocrine islets are respectively responsible for secreting insulin and glycogen, while delta cells secrete somatostatin and PP cells secrete pancreatic polypeptide.

Graphic 53979 Version 11.0

Disclosures

Disclosures: Steven D Freedman, MD, PhD Nothing to disclose. J Thomas Lamont, MD Nothing to disclose. Shilpa Grover, MD, MPH Employee of UpToDate, Inc.

Contributor disclosures are reviewed for conflicts of interest by the editorial group. When found, these are addressed by vetting through a multi-level review process, and through requirements for references to be provided to support the content. Appropriately referenced content is required of all authors and must conform to UpToDate standards of evidence.

Conflict of interest policy