GASTROINTESTINAL TRACT

The gastrointestinal tract, also known as the digestive or alimentary tract, is the pathway through which food passes as it is processed to enable the nutrients it contains to be absorbed for use by the body. It consists of the mouth, oesophagus, stomach, duodenum, small intestine, large intestine (including the colon and rectum), and anus. In addition, a number of other organs are involved in the digestion of food: the salivary glands in the mouth, the liver, pancreas, and gallbladder. These organs, together with the gastrointestinal tract, form the digestive system.

The digestive system breaks down the large, complex chemicals – proteins, carbohydrates, and fats – present in the food we eat into simpler molecules that can be used by the body (see also Nutrition, p.106). Undigested or indigestible material, together with some of the body's waste products, pass to the large intestine, and, when a sufficient mass of such matter has accumulated, it is expelled from the body as faeces.

What can go wrong

Inflammation of the lining of the stomach or intestine (gastroenteritis) is usually the result of an infection or parasitic infestation. Damage may also be done by the inappropriate production of digestive juices, leading to minor complaints like acidity and major disorders like peptic ulcers. The lining of the intestine can be damaged by abnormal functioning of the immune system (inflammatory bowel disease). The rectum and anus can become painful and irritated by damage to the lining, tears in the skin at the opening of the anus (anal fissure), or enlarged veins (haemorrhoids).

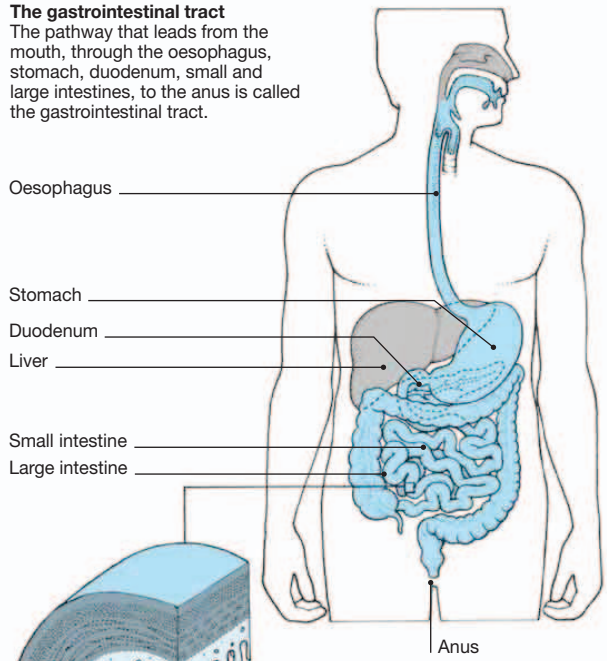
The most frequently experienced gastrointestinal complaints – constipation, diarrhoea, and irritable bowel syndrome – usually occur when something disrupts the normal muscle contractions that propel food residue through the bowel.

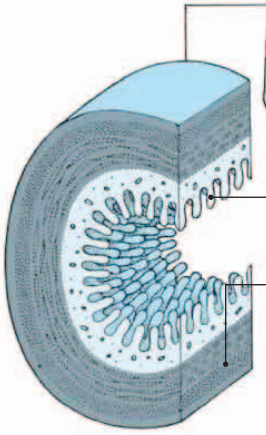
Why drugs are used

Many drugs for gastrointestinal disorders are taken by mouth and act directly on the digestive tract without first entering the bloodstream. Such drugs include certain antibiotics and other drugs used to treat infestations. Some antacids for peptic ulcers and excess stomach acidity, and the bulk-forming agents for constipation and diarrhoea, also pass through the system unabsorbed.

However, for many disorders, drugs with a systemic effect are required, including anti-ulcer drugs, opioid antidiarrhoeal drugs, and some of the drugs for inflammatory bowel disease.

The gastrointestinal tract
The pathway that leads from the mouth, through the oesophagus, stomach, duodenum, small and large intestines, to the anus is called the gastrointestinal tract.

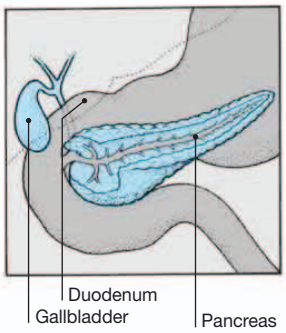




Cross section of intestine
The muscles in the outer layers of the intestinal wall help to propel food along the gastrointestinal tract (see facing page). The mucous lining of the intestine allows nutrients to be absorbed into the bloodstream.

Pancreas
The pancreas produces enzymes that digest fats, carbohydrates, and proteins into simpler substances. Pancreatic juices neutralize acidity of the stomach contents.

Gallbladder
Bile produced by the liver is stored in the gallbladder and released into the small intestine. Bile assists the digestion of fats by reducing them to smaller units that are more easily acted upon by digestive enzymes.



MAJOR DRUG GROUPS

- Antacids
- Anti-ulcer drugs
- Antidiarrhoeal drugs
- Laxatives
- Drugs for inflammatory bowel disease
- Drugs for rectal and anal disorders
- Drug treatment for gallstones