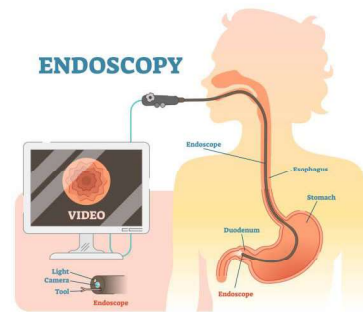


Endoscopes and fiber optic sensors are the very important applications of optical fibers apart from their use in communications

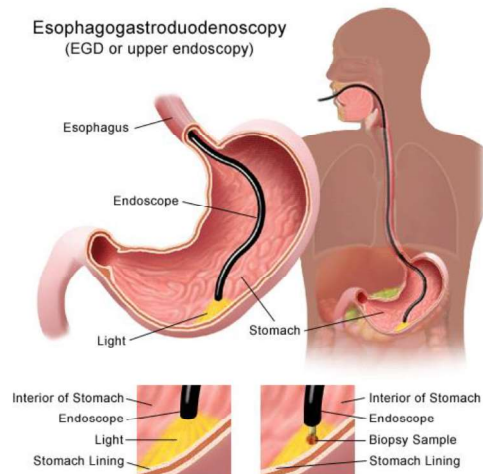
An endoscope can consist of:

- ❑ An endoscope is a slender, flexible tube equipped with lenses and a light source. Illumination is done by the help of a number of optical fibres.
- ❑ These optical fibers are arranged such that their terminations occupy the same relative positions in both the bound ends of the bundle. (coherent bundle)
- ❑ Reflected light rays are collected by CCD (Charge coupled device) and electrical signals are produced, which are fed to the video monitor to get image.
- ❑ Through one channel of endoscope water and air is conducted to wash and dry the surgical site.



- The endoscope also has a channel through which surgeons can manipulate tiny instruments, such as forceps, surgical scissors, and suction devices.
- A variety of instruments can be fitted to the endoscope for different purposes.
- A surgeon introduces the endoscope into the body either through a body opening, such as the mouth or the anus, or through a small incision in the skin.

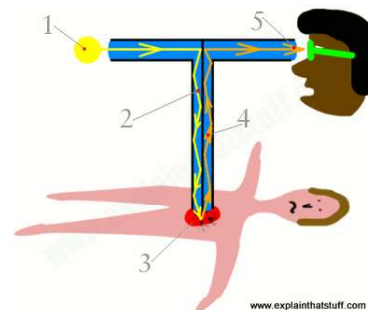
Esophagogastroduodenoscopy (EGD or upper endoscopy)

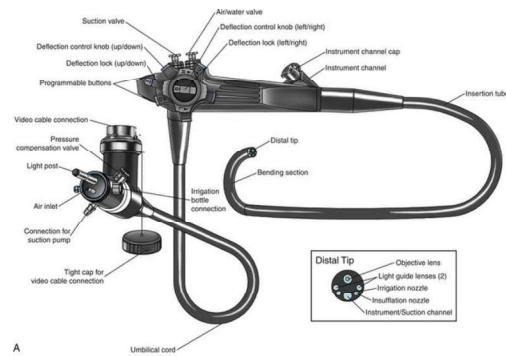


How do endoscopes work?

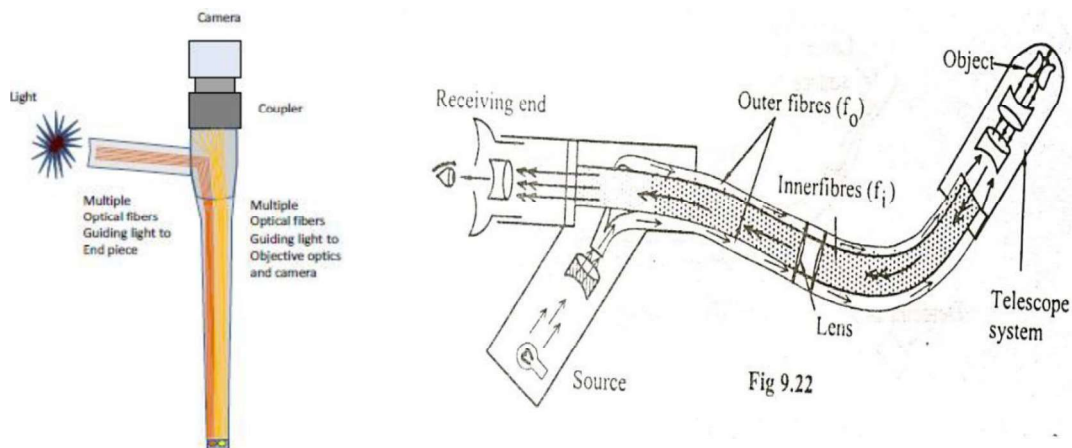
Here's how endoscopy works:

1. One of the two main endoscope cables carries [light](#) from a bright lamp in the operating room into the body, illuminating the cavity where the endoscope has been inserted.
2. The light bounces along the walls of the cable into the patient's body cavity.
3. The diseased or injured part of the patient's body is illuminated by the light shining in.
4. Light reflected off the body part travels back up a separate fiber-optic cable, bouncing off the glass walls as it goes.
5. The light shines into the physician's eyepiece so he or she can see what's happening inside the patient's body. Sometimes the fiber-optic cable is directed into a video camera (which displays what's happening on a [television](#) monitor) or a [CCD](#) (which can capture images like a [digital camera](#) or feed them into a computer for various kinds of image enhancement).





Endoscope system



Why Do I Need an Endoscopy?

Doctors will often recommend endoscopy to evaluate:

- ☐ Stomach pain
- ☐ Ulcers, gastritis, or difficulty swallowing
- ☐ Digestive tract bleeding
- ☐ Changes in bowel habits (chronic constipation or diarrhea)
- ☐ Polyps or growths in the colon

In addition, your doctor may use an endoscope to take a biopsy (removal of tissue) to look for the presence of disease.