



INFORMATION SHEET

TESTS AND INVESTIGATIONS FOR IBD

INTRODUCTION

This information sheet looks at some of the medical tests and investigations you may be offered if your doctor suspects you have Ulcerative Colitis (UC) or Crohn's Disease (the two main forms of Inflammatory Bowel Disease - IBD). The results from these tests will help to ensure that you are diagnosed correctly and that your treatment is based on good quality information.

As hospital procedures vary, this leaflet is only a general guide to the tests and investigations you might have. For more detailed information about the tests, talk to your doctor or specialist IBD team. They will be happy to help with any queries or concerns. You may also find that the hospital or clinic has its own information sheets about specific tests and procedures. You could also contact our Crohn's and Colitis UK helpline or visit our website for further help. (Our contact details are given at the end of this leaflet.)

WHICH TESTS WILL I NEED?

You will probably only need to have some of the tests listed in this information sheet, and you are unlikely to have them all at once. However, IBD is a fluctuating, ongoing condition and it is likely that you will need to have some of the tests repeated from time to time. After your initial diagnosis, further tests may be needed to determine which treatments are most suitable for you, how well you are responding and whether your disease is in remission.

“

A lot of people don't like blood tests – I know I didn't at the beginning. But over time it does become easier to deal with. ”

Nicholas, age 22
diagnosed with Ulcerative Colitis in 2011

BLOOD TESTS

There are several blood tests that are used to help support a diagnosis of IBD and to monitor the effects of IBD and its treatments.

Blood samples are usually taken from a vein in the arm, using a needle attached to a syringe or a small collecting container. For some specialised tests you may be asked to fast (not eat) overnight or for a few hours before the sample is taken. Your doctor or nurse will let you know if this is necessary. You are likely to need repeat blood tests over time. Some of the blood tests used most often in IBD are:

- **Full Blood Count (FBC)**

An FBC is a common test that measures the three main types of blood cells. It is used to give an indication of your general health as well as provide clues about particular health problems. Doctors talk about a 'range' of results since some people naturally have higher or lower levels than others. The FBC provides information on:

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- **White blood cells**

Numbers of white blood cells can be raised when there is inflammation or infection in the body, or can be lowered by drugs such as azathioprine.

- **Platelets**

High levels of these cells involved in blood clotting can also be a sign of inflammation.

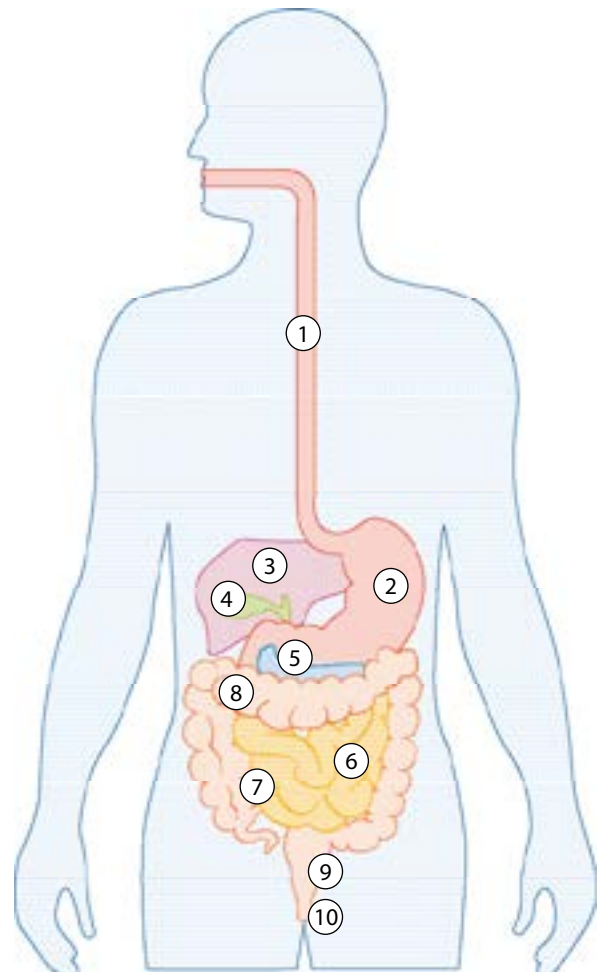
- **Red blood cells**

For these cells, used to carry oxygen around the body, a number of measurements are made. These include the number of cells (red blood cell count), and the haemoglobin level (the amount of oxygen carrying pigment contained in red blood cells). These measurements indicate whether you have anaemia, where there is too little haemoglobin and/or too few red blood cells.

Estimates suggest, at any one time, anaemia affects one in four people with Crohn's and one in five with UC. Anaemia, which can make you feel tired and short of breath, can be caused by bleeding in the intestines, poor absorption of iron and restricted food intake. It is recommended that people with active IBD should be regularly screened for anaemia.

Some of the drugs used in IBD, such as azathioprine and mercaptopurine, can affect the bone marrow (where the body manufactures blood cells) and reduce levels of red cells, white cells and platelets. People taking these drugs should have regular FBC tests.

- 1 OESOPHAGUS
- 2 STOMACH
- 3 LIVER
- 4 GALL BLADDER
- 5 PANCREAS
- 6 SMALL INTESTINE
- 7 ILEUM
- 8 LARGE INTESTINE (COLON)
- 9 RECTUM
- 10 ANUS



- **Inflammatory Marker Tests**

Inflammation can increase the levels of some types of proteins found in the blood. Blood tests, such as the C-Reactive Protein (CRP) test, can be used to detect inflammation by measuring the levels of these proteins (called inflammatory markers). While levels can be used to monitor response to treatment, these proteins are not specific to the gut and may also increase when there is inflammation elsewhere in the body. Also, a normal level of CRP does not necessarily rule out inflammation. This is why stool based tests of inflammation such as calprotectin are generally considered more sensitive. See **Stool Tests** below for more information.

- **Liver Function Tests (LFT)**

An LFT helps to show how well your liver is working. It is also used to help diagnose rare liver complications of IBD, such as Primary Sclerosing Cholangitis (PSC). This is a condition in which the ducts carrying the digestive juice bile from the liver to the gut become inflamed.

An LFT is a blood test measuring levels of enzymes (proteins speeding up chemical reactions in the body) that are made in the liver and can leak into the blood when the liver is damaged. An LFT also measures levels of albumin (a protein made by the liver which maintains the correct fluid pressure in the blood). Production of albumin is reduced in some liver disorders. Abnormal levels of enzymes and albumin can indicate liver problems.

Some of the drugs given for IBD (for example azathioprine) can occasionally cause liver complications. Measuring LFTs is a good way of checking for this.

- **Urea and Electrolytes (U&E)**

Measuring U&Es in the blood checks the levels of:

- electrolytes (dissolved salts such as sodium, potassium, chloride and bicarbonate),
- urea (formed from the breakdown of protein from food), and
- creatinine (formed from the breakdown of muscle).

The amounts of urea and creatinine in the blood show how well the kidneys are functioning. The tests can also be used to check for dehydration (a common effect of acute diarrhoea). Regular U&E tests are often recommended for people on IBD drugs, especially mesalazine.

- **Ferritin and Transferrin Tests**

To diagnose iron deficiency anaemia, blood levels of ferritin (and less frequently transferrin) are measured, together with a Full Blood Count (see above). Ferritin is the protein that binds to iron to store it in cells. Transferrin is the protein that transports iron around the body (carrying it away from the gut for storage and to the bone marrow to make red blood cells). Blood levels of ferritin and transferrin reflect the total amount of iron stored in the body and are used to distinguish iron deficiency anaemia from other causes of anaemia (such as chronic disease).

- **Vitamin B12 and Folic Acid**

Vitamin B12 (also known as cobalamin) and folic acid (vitamin B9) are both essential for health. They are vitamins that cannot be made in the body so they need to be taken in the diet. Among many functions, they are used to make red blood cells. Absorption of both vitamin B12 and folic acid into the body takes place in the small intestine and can be reduced in people who have had surgery or have inflammation in the intestines. The result is that many people with Crohn's and some with UC experience shortages of these vitamins. When having these measurements tell your doctor about any medicines you are taking and also any recent scans since some drugs (such as proton pump inhibitors, H2 receptor blockers, oral contraceptives and metformin for diabetes) and some dyes used in scans can interfere with the results.

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- **Vitamin D**

Levels of vitamin D are often low in people with IBD due to:

- reduced intake - people may avoid dairy products due to lactose intolerance
- reduced absorption - from inflammation or surgery.

The body requires Vitamin D to absorb calcium from the diet, with the result that people who do not have enough vitamin D can suffer from osteomalacia (softening of the bones). In children, osteomalacia is known as rickets. Vitamin D is also probably important in maintaining a healthy immune system. Blood tests are used to check for low levels of vitamin D, and to monitor the dose of vitamin D supplement needed. While there are no guidelines for when to measure vitamin D, some experts believe it should be checked once every year in all IBD patients.

- **Thiopurine methyltransferase (TPMT)**

The level in the blood of the enzyme TPMT should be assessed before starting treatment with the drugs azathioprine or mercaptopurine. TPMT breaks down these drugs, with the result that people with lower levels of the enzyme are more likely to experience side effects, and should start on a lower dose.

- **Screening tests**

Before starting immunosuppressant drugs, you should be screened for current infections, including TB (tuberculosis), hepatitis B virus, hepatitis C virus and HIV (human immunodeficiency virus). You should also be screened for varicella zoster virus unless you have a clear history of chicken pox. If you are found to have no immunity to chicken pox, you may be offered immunisation.

If you are found to have one of these infections, it might need to be treated before starting immunosuppressants. Screening is important because immunosuppressants reduce the effectiveness of the immune system, which can lead to being seriously unwell from infection.

- **Antibody tests**

Some people taking biologic therapies develop an immune response against these drugs which leads to the drugs becoming less effective. Biologic therapies used in IBD include:

- infliximab (brand names Remicade, Inflectra or Remsima)
- adalimumab (brand name Humira)
- vedolizumab (brand name Entyvio)

Some hospitals now offer regular blood tests to check drug levels, and if the levels are found to be low, they test whether antibodies (proteins that identify foreign invaders) have formed against these drugs. If antibodies are found, doses can be increased or treatments changed.

- **Other blood tests**

Other blood tests that may be helpful in IBD include:

- Calcium and Phosphate. Both these minerals are important for bone health. You may get less calcium and phosphate from your diet if you have lactose intolerance or cannot absorb nutrients properly.
- Magnesium. Levels of magnesium (required for muscle, bone and nerve function), can be reduced by ongoing diarrhoea in people with IBD.
- Trace Elements. Trace elements (including zinc, selenium, and chromium) are chemicals that the body needs in tiny amounts for normal functioning. Guidelines recommend levels should be checked regularly for people on intravenous feeding (where a liquid food mixture is given into the bloodstream through a needle in the vein) or on long-term nutritional treatments.

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- Coeliac disease. Since symptoms of coeliac disease (an allergy to gluten) are similar to IBD, you may be tested for coeliac disease. The blood test looks for antibodies commonly found in people with coeliac disease.

STOOL TESTS

Fresh stool samples can be examined to check whether flare-ups of IBD-like symptoms have been caused by infections. For a stool test, you will need to collect a sample (about the size of a walnut) of your faeces in a clean, dry screw-top container. Your doctor will provide you with the container. The laboratory will then test the sample for symptom-causing bacteria. Because of the wider variety of possible infections if you have recently travelled abroad, you may need additional tests.

Measuring the level of calprotectin (a protein contained in white blood cells) in a stool sample can detect active inflammation in the intestine.

The National Institute for Health and Care Excellence (NICE) recommends that faecal calprotectin tests should be used to distinguish IBD from other, non-inflammatory, conditions, such as Irritable Bowel Syndrome (IBS). The test can also be used to monitor whether you are responding to treatment.

The NHS has a bowel cancer screening programme for people aged 60 to 74 that uses a Faecal Occult Blood (FOB) test to check for hidden (occult) blood in the stool. See our information sheet **Bowel Cancer and IBD** for further details.

ENDOSCOPIES

Endoscopy is the general name for a type of test which allows a specialist doctor or nurse (an endoscopist) to look directly at the inside of the digestive system, using an endoscope.

There are several different types of endoscope, depending on which part of the body is being examined. But, in general, an endoscope is a long, thin, flexible tube with a light and a video camera attached to the end of it. The endoscope can be inserted either through the mouth to look at the top part of the digestive system, or through the anus (bottom) to look at the colon and rectum. The video camera relays images to a screen outside the body, allowing the endoscopist to have a clear view of the part of the gut they are examining.

- Biopsy. The endoscopist may also take biopsies (small samples of tissue) through the endoscope. This involves a small scraping of cells from the lining of the gut, which can then be examined under a microscope to give more information.
- Polyps. During endoscopy, it is possible to remove polyps (small mushroom-like growths on the inner lining of the colon that may, rarely over time, become cancerous). The endoscope can be fitted with a wire containing an electric current that can be used to remove the polyps. For more information on this procedure, see our leaflet: **Bowel Cancer and IBD**.
- Strictures. Endoscopists also use balloons (which are passed via the endoscope and inflated inside the gut) to dilate strictures (narrowings) of the gut.

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Preparing for an endoscopy

The endoscopy staff will provide you with detailed instructions on how to prepare for your endoscopy, and will answer any questions you may have about the test. If you have sedation or a general anaesthetic you will need to arrange for someone to take you home and stay with you for the next six hours. Sedation affects your reflexes and judgment, so you will not be allowed to drive, take alcohol, operate heavy machinery or make any legal decisions for 24 hours.

Types of endoscopy

The main types of endoscopy are as follows:

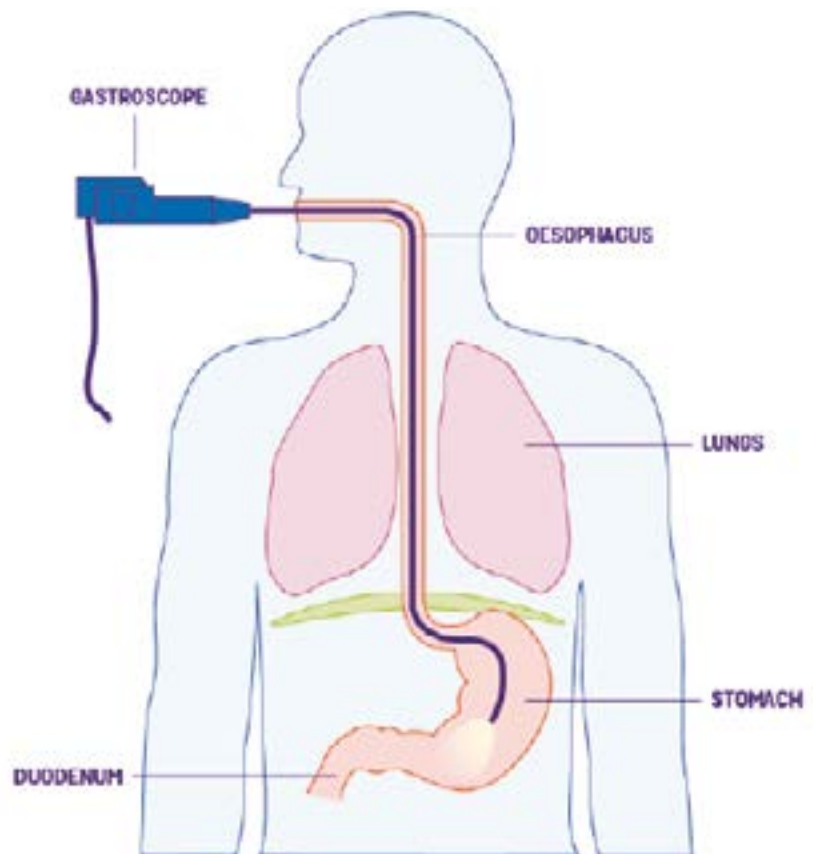
- **Upper Gastrointestinal (GI) Endoscopy (or Gastroscopy)**

This type of endoscopy is used to examine the upper part of the digestive system – the oesophagus (gullet), stomach, and duodenum (first part of the small intestine). It tends to be used more for Crohn's than UC, but may be helpful to rule out Crohn's when diagnosing UC.

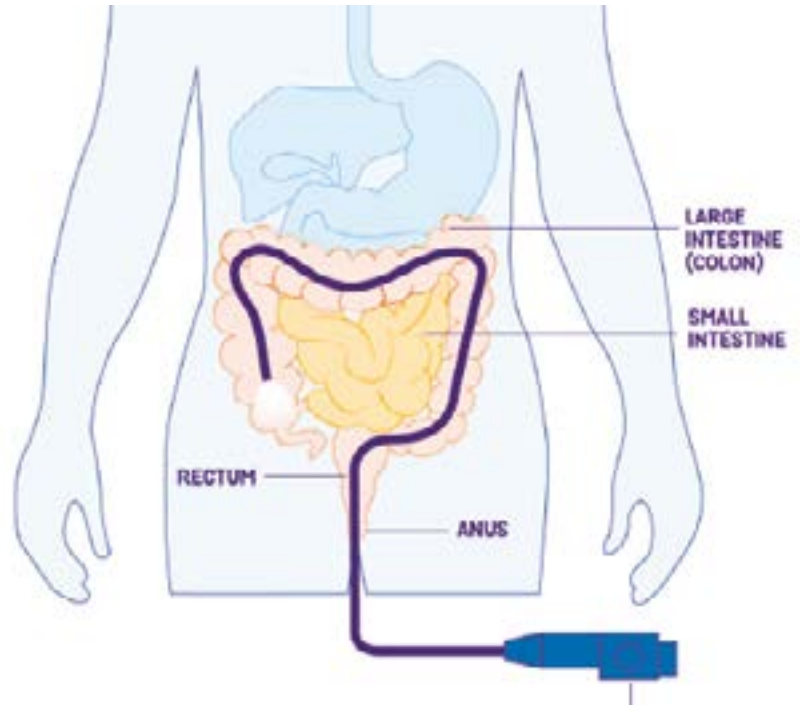
The endoscope used for this type of examination is usually known as a gastroscope. It will be gently inserted through the mouth and down the oesophagus into the stomach and the first part of the small intestine. The windpipe can be easily avoided and your breathing will be unaffected. The stomach must be empty in order to get a clear view, so you will be asked not to eat anything for at least six hours before the procedure.

You will be offered the choice of sedation (administered into vein in your hand or arm) or a local anaesthetic throat spray (which works much like a dental injection).

Sedation makes you drowsy and relaxed, but not unconscious. Although you will be able to follow simple instructions during the investigation it is unlikely that you will remember much afterwards about the procedure. If you have the throat spray you must not have anything to eat or drink until the sensation in your mouth and throat has returned to normal. Children will normally be offered general anaesthesia.



- **Colonoscopy**



“

The sedative that I had for the colonoscopy made it difficult to do much afterwards. So I made sure someone came and collected me after the test, and took me home, because I needed someone to look after me.

”

—
Cari, age 34
diagnosed with Crohn's Disease in 2007

“

Having my first colonoscopy was pretty daunting. But I needn't have worried, as although it was uncomfortable, it was over quickly enough.

”

—
Karen, age 55
diagnosed with Crohn's Disease in 1991

A colonoscopy is an examination of the colon (large intestine). Colonoscopies are often used to diagnose and to assess the extent and severity of UC and Crohn's.

The endoscope used in a colonoscopy is known as a colonoscope. It is a narrow, flexible tube, long enough to examine the whole of the colon, and, if necessary, the lower end of the small intestine as well. It is inserted through your anus, into your rectum and then on into your colon.

Regular, or 'surveillance', colonoscopies may also be recommended to check for dysplasia (abnormal cell changes which can be an early sign of bowel cancer) in people with longstanding and extensive UC or Crohn's Colitis. Guidelines advise that most people should have a colonoscopy eight to 10 years after the start of UC or Crohn's Colitis. Depending on what is seen, it is likely that follow-on colonoscopies will be recommended every one, three or five years. People who also have Primary Sclerosing Cholangitis are at an increased risk of colorectal cancer, and therefore surveillance colonoscopy is recommended at diagnosis, then every one to two years. Chromoendoscopy, which involves spraying special dyes onto the lining of the colon, is used to help to identify abnormal cells.

For colonoscopy to be successful, the colon has to be completely clean (empty of stool/faeces). To ensure that the colon is clear, you will be asked to take a laxative preparation around 24 hours before the procedure. It is important to follow the written instructions you will be given about taking the preparation, otherwise your test may be unsuccessful and will need to be repeated.

Similar to a endoscopy, you may be offered sedation for the colonoscopy to help you feel sleepy and relaxed. An alternative during colonoscopy, is nitrous oxide, known as 'gas and air'. The advantage of nitrous oxide, which is commonly used to relieve pain in childbirth, is that the drug is quickly expelled from the body, allowing you to drive within 30 minutes of the procedure. Children are usually given a general anaesthetic.

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If you are going to have a colonoscopy, some useful tips include:

- Make sure medical staff and the endoscopy team know about all the medications you are taking (including over the counter remedies, vitamin pills and supplements) in good time before your procedure. They also need to know if you have kidney disease, heart failure or allergies (including latex).
- You may be asked to discontinue oral anticoagulants (such as warfarin) for a few days before the endoscopy procedure due to risks of bleeding.
- Seven days before your endoscopy appointment, stop taking iron tablets as iron makes everything inside your bowel appear black and the lining hard to see.
- Four days before your endoscopy appointment, stop taking any medications that might cause you to become constipated (e.g. lomotil, loperamide or codeine phosphate).
- A few days before your endoscopy, you may be asked to avoid red meat and foods containing fibre (such as fruit, pulses or lentils, vegetables, and nuts/seeds) since these remain longer in your digestive system than other foods.
- All foods and milk should be finished at the time written on your appointment letter.
- For the 24 hours before your appointment, you must only drink clear liquids. A liquid is considered 'clear' if you can read newsprint through it, i.e. apple juice is considered clear, while orange juice is not.
- The more liquid you consume the easier the bowel prep will be. You should drink at least a glass of water (about 250ml) or another clear fluid every hour while the effects of the medication persist. Fluids not only prevent dehydration, but play an important part in the bowel cleaning process.
- Some people find the taste of laxative preparations unpleasant. Suggestions for making the experience more agreeable include drinking through a straw placed far back on your tongue, chilling the preparation in the fridge, or mixing it with a cordial drink. It is a good idea to have water to hand to drink straight after consuming each glass of prep.
- Once you have started taking laxatives, it is advisable to stay near a toilet as you will experience frequent bowel movements. You can use a barrier cream, such as zinc and castor oil, on your bottom or a nappy rash ointment, to prevent soreness during your frequent trips to the toilet. Some abdominal cramping is normal.
- During many endoscopy tests, air is pumped into the colon to improve views of the bowel wall. If any air remains, you may experience sensations of bloating and cramping after the procedure. To help relieve this discomfort, try walking around, drinking warm drinks or peppermint water and taking a pain killer. It is probably better to avoid ibuprofen, diclofenac, and aspirin since these are non-steroidal anti-inflammatory drugs (NSAIDs) and studies suggest they may trigger a flare-up of IBD. Paracetamol may be a safer option. If you have concerns, talk to your doctor or IBD team.

- **Sigmoidoscopy (or Proctosigmoidoscopy)**

A sigmoidoscopy is similar to colonoscopy but only examines the rectum and sigmoid colon (the lower part of the colon). Usually a flexible endoscope is used, which allows the endoscopist to see further up the colon than if the non-flexible version is used. You may feel some discomfort, but this should pass once the examination is finished. Sigmoidoscopy is most useful for IBD limited to the left side of the colon.

To give the doctor a clear view, it will be necessary for the lower part of the colon to be empty of faeces. To do this, you will need to have an enema (a liquid preparation which is squirted into the back passage to induce a bowel movement). An enema can be self-administered at home or by nursing staff when you arrive at the hospital. You may eat and drink normally until you have the enema, after which you can only have clear fluids until after the test.

The procedure, which usually takes around 10-20 minutes, is usually done without sedation, although you may be offered nitrous oxide. During sigmoidoscopy, biopsies may be taken and small polyps removed. Sigmoidoscopy is most useful for IBD limited to the left side of the colon.

People with UC who have undergone an ileal pouch anal anastomosis (IPAA) procedure (where an artificial rectum has been created from the small intestine) may need to have the pouch examined with a sigmoidoscope to look for pouchitis (inflammation) and for routine cancer surveillance.

- **Single or Double Balloon Enteroscopy**

This form of examination uses a special type of endoscope with one or two small balloons at its tip. By alternately inflating and deflating the balloons, (also known as push and pull endoscopy) the endoscope can be moved further into the small intestine than other types of endoscopes. It may be inserted through the mouth, or, less commonly, through the anus. It can be used to take biopsies, remove polyps and for dilatation (widening) of strictures. Since the procedure takes longer than other endoscopies, a general anaesthetic or sedative is generally advised.

- **Capsule Endoscopy**

For this investigation, you will be asked to swallow a small capsule the size of a large vitamin pill. This is generally done after an overnight fast. The video capsule contains a camera, which takes a series of photographs as it passes through the digestive system. These photos are sent to a small data recorder worn around the waist. You will be allowed to go home wearing the data recorder, but should avoid strenuous exercise and bending over. The capsule is disposable and should pass out of the body naturally in a bowel movement. Biopsies cannot be taken with the capsule, and the capsule is not suitable for people with strictures or bowel obstructions as it can become stuck. Capsule endoscopy is normally only used when IBD is suspected but colonoscopy findings have been negative.

The patency capsule, which is about the same size as the video capsule, is sometimes used to identify whether patients are free of strictures and bowel obstructions and can safely undergo capsule endoscopy. Instead of the camera, the patency capsule contains a radioactive tag allowing it to be detected by an external radioscanner. The capsule, which is made from cellophane, starts to disintegrate if the passage of the device becomes blocked.

X RAYS AND OTHER IMAGING TESTS

X-rays are a type of radiation that is absorbed at different rates by different parts of the body, so it can form an image on a special type of film. Dense parts of the body (bone, for example) that X-rays have difficulty passing through show up as clear white areas on the image. Softer structures (for example, heart and lungs) show up as darker areas.

The x-ray and other similar imaging methods used in IBD can have different benefits and risks in terms of, for example, exposure to radiation, image quality, or the need for anaesthetic.

- **Abdominal X rays**

Ordinary or plain abdominal X-rays do not show as much detail of the digestive system as some of the other imaging techniques (see below). However, they may be used in an emergency to diagnose bowel obstruction, perforation or megacolon (widening of the colon which may cause perforation).

- **Barium studies**

Barium is a harmless white substance which is not absorbed into the body, but instead forms a temporary coating on the inside of the intestines. Since X-rays can not pass through barium, it is used to provide a clearer outline of the gut on X-ray pictures. Barium is introduced in different ways depending on the part of the gut needing imaging. For the upper part of the digestive system, you will be asked to swallow barium (known as a barium meal). For the small intestine (known as a barium follow through test), you will take barium by mouth and be asked to take a laxative the day before the test. You will also need to fast overnight.

To visualise the colon, a barium enema is used, delivering barium directly into the colon through a short tube placed in the anus. After taking barium, your faeces will turn pale and chalky looking for a few days and may be difficult to flush away. Barium studies have recently become less common for IBD due to widespread availability of CT and MRI imaging (see below). CT and MRI offer the advantage of greater detail and information beyond the inner lining of the bowel (such as fistula or abscesses).

- **Chest X-rays**

Biologics increase the risk of infections, such as tuberculosis (TB). Before starting biologics you will need to have a chest X-ray to rule out silent TB infection, which might be made worse by treatment. Whilst on biologics, people with IBD who have travelled for more than a month to countries with high levels of TB should also consider having a chest X-ray.

- **DEXA (Dual Energy X-Ray Absorptiometry) scans**

DEXA scanners use low dose X-rays to measure bone density, usually in the spine or thigh bone. This is a painless test taking around 20 minutes. DEXA can show if bones have become thinner and weaker than normal – a condition known as osteoporosis. People with IBD have an increased risk of developing osteoporosis, particularly if they have been on steroids, or have low calcium levels. Annual DEXA scans are recommended for people taking steroids long-term. For more details, see our information sheet: **Bones and IBD**.

- **Computerised Tomography (CT) or Computerised Axial Tomography (CAT) scans**

A CT scanner is a special machine that uses a series of X-ray beams to build up a detailed picture of the body. The scanner looks like a giant ring doughnut, and you lie on a moveable bed, which slowly passes through the centre. X-rays are taken at different angles, and the images put together to produce two-dimensional (2-D), or sometimes, three-dimensional (3-D) views of the body.

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CT enterography (CTE) is an imaging test combining CT scanning with contrast material to improve the detail of the small intestine. Before the test, in some hospitals, you will need to drink a few glasses of liquid containing the contrast material. In other hospitals, you may only be asked to drink water. Then during the scan, a different type of contrast material will be injected into a vein in your arm. CTE improves the accuracy of diagnosis and allows good imaging of the entire thickness of the bowel wall. Occasionally, enteroclysis is used where a small tube delivers contrast material to where it is needed in the intestine, instead of the fluid being swallowed.

Advantages of CT and CTE include:

- rapid scan times (about 10 minutes)
- the ability to examine the entire length of the small bowel
- imaging children without sedation
- quiet machines
- widespread availability.

Also, unlike MRI scanners, the CT scanner does not surround your whole body so you should not feel claustrophobic (fear of enclosed spaces).

Disadvantages include exposure to ionizing radiation. It is considered good practice to minimise radiation where possible for people with IBD because they are likely to require many imaging studies, which could lead to a high total dose of radiation to the body.

- **Magnetic Resonance Imaging (MRI)**

MRI scans use strong magnetic fields and radio waves to create images of the inside of the body. MRI scans do not use X-ray radiation. The MRI scanner looks like a long tube or tunnel, and you will be asked to lie on a moveable table, which slides slowly inside this tunnel.

MR enterography (MRE) is a special type of MR imaging that is performed with the addition of contrast material to produce better images. You will need to drink contrast material before the scan, and then during the scan a different type of contrast material will be injected into a vein in your arm. MRE improves the accuracy of diagnosis and allows good imaging of the entire thickness of the bowel wall.

The MRI scan can be noisy (due to the electric current in the scanner coils being turned on and off) so you may be provided with ear plugs or headphones to wear.

The scan can take from 15 minutes to over an hour and a half. This means that some people may find it uncomfortable, especially if they suffer from claustrophobia. However, for IBD investigations, because the abdomen is usually the area being examined, your head may not be completely inside the scanner for the duration of the test. If you feel anxious, you may want to ask for a mild sedative prior to your examination. It is important to lie very still during the scan to stop images becoming blurred, and you will need to follow instructions to hold your breath from time to time.

Advantages of MR and MRE include scans being free of radiation and the ability to explore the entire length of the small bowel. MRI scanners use magnets, which means that they are not suitable for people with electronic devices (such as pacemakers) or who have metal implants (such as artificial joints).

Some people may have an Magnetic Resonance Cholangiopancreatography (MRCP), which provides detailed images of the liver, gall bladder, bile ducts, pancreas and pancreatic ducts. The technique can be used to diagnose Primary Sclerosing Cholangitis.

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- **Ultrasound**

Ultrasound is another form of scan helpful in IBD. Ultrasound scanners work by using high frequency sound waves to create an image. A handheld sensor is moved over the surface of the skin, and this sends out sound wave signals which bounce off internal organs. The scanner then picks up the echoes and converts them into an image. Ultrasound can show up thickening of the bowel wall, fistulas (abnormal channels linking different parts of the bowel), abscesses and strictures.

Advantages of ultrasound include no exposure to radiation, wide availability and being a comfortable procedure for patients. Before the scan, you will need to drink large amounts of liquid and to avoid eating for a few hours. Drinking a contrast agent before the scan can help improve the detection of inflammation.

Endoscopic Ultrasound Scans (EUS), involve using a special type of endoscope with a tiny ultrasound transmitter in the tip. As with a normal endoscope, EUS is inserted through the mouth to examine the upper part of the digestive system or through the anus to examine the colon and ileum. If necessary, your doctor will be able to take samples of cells. For the procedure you will usually be given a sedative or a local anaesthetic spray to numb your throat.

- **SeHCAT Scan**

A SeHCAT scan is used to find out whether diarrhoea is caused by bile acid malabsorption (BAM). When you eat, bile salts (made in the liver and stored in the gall bladder) are released into the small bowel to help digest food. Normally, when bile salts reach the end of the small bowel, they are taken up by the blood. However, if the lower end of the small bowel is inflamed (due to Crohn's Disease) or has been removed during surgery, bile salts may not be absorbed. Instead, bile salts enter the large bowel (colon) where they draw fluid from the blood, leading to diarrhoea.

The SeHCAT scan involves two separate appointments. At your first appointment, you will be asked to swallow a small capsule containing synthetic bile salts linked to a radioactive tracer. A little later, a scan will be taken using a special camera that identifies radioactivity. At the second appointment, a further scan will be done to measure the amount of synthetic bile salt remaining in your body, showing whether you have problems absorbing bile salts.

Apart from stopping certain drugs that interfere with the test results (Creon, colestyramine and colesevelam), you can eat, drink and take other medications as normal. No sedation is necessary.

There is no need to be concerned about the level of radiation since the radiation dose is low (equivalent to the amount received from natural sources of radiation in about two months), so you will not need to stay away from anyone. However, you may find some airports have sensitive radiation detectors that are triggered by the small amounts of radioactivity, which remain in your body for up to three months after the scan. Therefore, it is recommended you carry your appointment letter to show airport security officers.

OTHER INVESTIGATIONS

- **Examination Under Anaesthetic (EUA)**

If you have perianal Crohn's, you may be given an anaesthetic so that the area can be examined while you sleep, since the examination is painful and it is helpful to have the anal sphincters and pelvic floor muscles fully relaxed. EUA is often used to investigate fistulas (abnormal channels, tunnels or passageways connecting one internal organ to another, or to the outside surface of the body), and sometimes a special probe is used to trace out the route of the fistula.

TESTS AND INVESTIGATIONS FOR IBD

Studies show that pelvic magnetic resonance imaging (MRI) is more accurate than EUA at finding the course of perianal fistulas. However, EUA offers the advantage of also allowing any abscesses to be drained and other treatments to be given. For more details, see our information sheet: **Living with a Fistula**.

“

The results from the tests I've had, have helped to keep me informed about how I am physically, which has really given me a feeling of being in control of my condition.

”

Bev, age 48
diagnosed with Ulcerative Colitis in 1981

DIAGNOSIS OF IBD

There is no one test to diagnose UC or Crohn's, instead your IBD team will consider all your symptoms, together with the results of endoscopies, biopsies, blood and stool tests, scans and X-rays. To reach the diagnosis often requires a team of specialists including gastroenterologists, pathologists and radiologists. It can take time to confirm a diagnosis of IBD as it may be necessary to rule out a number of other conditions, such as irritable bowel syndrome, coeliac disease and infections of the bowel.

Endoscopy shows the macroscopic (visible to the human eye) appearance of the lining of the gut. Crohn's can be identified by the presence of isolated areas of inflammation and UC by continuous areas of inflammation, with no gaps in between. The biopsies (tiny samples of tissue) that are taken during endoscopy will be examined under the microscope for features that are distinctive of Crohn's or UC.

Generally, scans and X-rays show the location and extent of inflammation. This helps doctors to distinguish between Crohn's (which can affect any part of the digestive system from mouth to anus) and UC (which affects only the large intestine). Cross-sectional imaging (such as CT and MRI) can show whether ulcers have spread through all layers of the bowel wall (as occurs in Crohn's) or affect just the inner layers (UC).

HELP AND SUPPORT FROM CROHN'S AND COLITIS UK

We produce over 40 information sheets, booklet and guides about all aspects of IBD which are available to download for free on our website:
www.crohnsandcolitis.org.uk

We run a confidential helpline which is staffed by a team of trained Information Officers providing information and support to anyone affected by Inflammatory Bowel Disease.

Our team can:

- help you understand more about IBD, diagnosis and treatment options
- provide information to help you to live well with your condition
- help you understand and access disability benefits
- be there to listen if you need someone to talk to
- help you to find support from others living with the condition

Call us on **0300 222 5700** or email **info@crohnsandcolitis.org.uk**

See our website for WebChat (Live Online): **www.crohnsandcolitis.org.uk**

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We hope that you have found this leaflet helpful and relevant. If you would like more information about the sources of evidence on which it is based, or details of any conflicts of interest, or if you have any comments or suggestions for improvements, please email the Publications Team at publications@crohnsandcolitis.org.uk. You can also write to us at Crohn's and Colitis UK, 45 Grosvenor Road, St Albans, AL1 3AW or contact us through our helpline: **0300 222 5700**.

ABOUT CROHN'S & COLITIS UK

We are a national charity established in 1979. Our aim is to improve life for anyone affected by Inflammatory Bowel Diseases. We have over 33,000 members and 50 Local Networks throughout the UK. Membership costs start from £15 per year with concessionary rates for anyone experiencing financial hardship or on a low income.

This publication is available free of charge, but we would not be able to do this without our supporters and members. Please consider making a donation or becoming a member of Crohn's and Colitis UK. To find out how call 01727 734465 or visit www.crohnsandcolitis.org.uk

