What is a CT Colonography scan and what are the benefits of having it?

Computerised tomography colonography is a CT scan that uses x-rays to look at the large bowel (colon) and abdomen. It is performed as an alternative test to a barium enema or colonoscopy. The examination is performed by a senior radiographer or a radiologist and usually lasts no longer than 30 minutes. The results of the scan will help your doctor to diagnose your condition and decide on any necessary treatment.

What do I have to do before I come for the examination?

To ensure success it is very important that you follow the instructions below very carefully.

You will need to follow a special low residue diet (see pages 2-3), and drink the Gastrografin liquid to ensure that only a small amount of faecal material is present in your bowel at the time of the scan.

If taken as instructed, the Gastrografin will help the person interpreting your scan to distinguish between any remaining faecal material and possible abnormalities in your bowel.

Important safety information:

It is important that you contact the Imaging Appointments Office on Tel. No. 01246 512627 (lines open Monday to Friday – 8.15 a.m. to 6.15 p.m.) before you take the preparation you have been sent if:

- You are allergic, or suspect you are allergic, to iodine or saccharin
- You have had a serious allergic reaction in the past, regardless of what you were allergic to
- You have Grave’s disease (overactive thyroid)
- If you take beta blockers or Interleukin
- If you have difficulty swallowing liquids or have been told you are at risk of aspiration (drinks ‘go down the wrong way’ or make you cough)

If any of the above statements apply to you, or you have any other concerns regarding the preparation for this examination, please ring the Imaging Appointments Office on the above telephone number.

Preparation instructions:

If you are taking iron tablets or any medication containing iron, stop this 5 days before you are due to come for the examination.

If you are taking any constipating medicines such as Codeine, Lomotil, Kaolin and Morphine, Loperamide (Imodium), Regulan, or Fybogel stop this 2 days before you are due to come for the examination. It is important for you to continue all other medications and any laxatives you usually take until you come to hospital.
Bowel Prep and Diet Sheet

Please follow these instructions closely to make sure that your bowel is as empty as possible before the scan. Keeping to this diet will improve the accuracy of this test. You will need to stay close to a toilet the day before the examination at all times as the Gastrografin is a laxative which can be extremely effective.

If you are taking iron tablets, stop taking them 5 days before your scan.

You should have received a drink of Gastrografin to take as prescribed below. If you are ALLERGIC to IODINE, or if you have difficulty swallowing, DO NOT drink the Gastrografin and please call us on 01246 512627.

<table>
<thead>
<tr>
<th>Two Days Before Your Scan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>You can eat low fibre foods as follows:</strong></td>
</tr>
<tr>
<td>J Milk (2 cups/day), plain yoghurt, cheese, butter, margarine</td>
</tr>
<tr>
<td>J White fish or chicken (boiled/steamed/grilled)</td>
</tr>
<tr>
<td>J Eggs, Tofu</td>
</tr>
<tr>
<td>J White pasta, white rice</td>
</tr>
<tr>
<td>J White bread, white pitta, white flour chapattis</td>
</tr>
<tr>
<td>J Potatoes with no skin eg mashed, boiled</td>
</tr>
<tr>
<td>J Clear soups (no solid bits eg sieved chicken noodle), Bovril, Oxo</td>
</tr>
<tr>
<td>J Clear jelly, boiled sweets, ice cream, chocolate (no fruit or nut)</td>
</tr>
<tr>
<td>J Salt, pepper, sugar, sweetners and honey</td>
</tr>
</tbody>
</table>

**Suggested Meals**

**Breakfast:**  
White bread/toast with butter and honey  
Boiled or poached egg

**Lunch:**  
Grilled fish or chicken with white rice and boiled potatoes (no skin).  
Scrambled eggs on white toast, vanilla ice cream

After lunch DO NOT EAT ANY MORE SOLID FOOD until after your scan. You can still have clear soups, jelly, ice cream, Ambrosia custard, Complan drinks, Bovril, Oxo, water, clear juices, fizzy drinks, tea and coffee

At 7.00 pm: Drink half the bottle of Gastrografin – this is best done by mixing with an equal amount of water and some cordial eg blackcurrant squash.
Bowel Prep and Diet Sheet (continued)

THE DAY BEFORE YOUR SCAN

DO NOT EAT ANY SOLID FOOD until after your scan. You can still have clear soups, jelly, ice cream, Ambrosia custard, Complan drinks, Bovril, Oxo, water, clear juices, fizzy drinks and tea. Drink as much tea or water as you like but take AT LEAST ¼ pint (150 mls) of fluid every hour on the hour during the daytime.

At 7.00 pm: Drink the second half of the bottle of Gastrografin mixed with water and cordial.

ON THE MORNING OF YOUR SCAN

Keep drinking plenty of fluids from the list but DO NOT EAT any solid food

After the examination: You can eat normally when you have left the department.

FOR FEMALE PATIENTS: If there is any chance you might be pregnant, please notify the X-ray Department. If you take oral contraceptives, the diarrhoea may reduce their effectiveness. Continue taking oral contraceptives but use other precautions for the remainder of that cycle.

If you have any questions, please contact the Imaging Department on 01246 512627.

DIABETIC PATIENTS ONLY

Two days before the examination:
Take your diabetic tablets/insulin as normal.

The day before the examination:
For patients taking insulin please see Appendix A
For patients taking tablets and non-insulin injections please see Appendix B

On the day of the examination:
On the morning of the examination a light breakfast is suggested (1 slice of white bread, toasted or plain, with black tea/coffee) which helps with the administration of either tablets or insulin. Remember we are trying to prevent hypoglycaemia.

Once the examination is complete, you can return to your normal diet and medication.

Do I need to bring anything with me?
Please bring a dressing gown if you have one. Do not bring unnecessary money or items of value.

How long will it take?
The actual examination will take approximately 30 minutes, but you should expect to spend 1 hour in the scan department.
What happens during a CT Colonography?
You will be asked to change into a hospital gown and your dressing gown. We will ask you some questions and explain the procedure so that you understand what will happen. You can also ask us questions if you are unsure about anything.

Once in the scan room you will be asked to lie on the scan table. A member of staff will put a needle (cannula) into your arm so that we can give you a muscle relaxant (Buscopan) and an x-ray contrast dye during the scan if needed. The Buscopan may cause you to have blurred vision for about 20 minutes.

You will then be asked to lie on your left side and a small tube will be inserted into your back passage. Your colon will be filled with carbon dioxide from a special machine to expand the bowel. Two scans are then performed, one with you lying on your back and the other on your side or front. Occasionally we might need to do a third scan to see the whole bowel. The scan table moves slowly during the examination and the equipment makes a whistling/humming noise.

At the end of the examination, the tube will be removed and you will be shown to the toilet. You may be required to wait for a few minutes after leaving the scan room before leaving the department.

After the examination:
Once the examination is completed you may leave the department and return to your normal routine and diet. As you may experience blurred vision from the Buscopan, we recommend that you do not drive immediately after the examination.

What are the risks, side-effects and alternatives?
CT scanning involves using x-rays. Female patients who are or think they might be pregnant must inform a member of staff in advance.

The amount of radiation used in this test is more than an ordinary x-ray and is equal to the amount of natural background radiation we are exposed to in the atmosphere over 3 years. This increases your risk of developing cancer at some point in the future very slightly, but this extra risk is extremely low. X-rays from medical procedures are carefully controlled and monitored for your safety.

We sometimes need to give you x-ray contrast dye into a vein to give us more information from the scan. The most common symptoms that you are likely to experience are a hot feeling passing down your body, a metallic taste in the mouth, or nausea. This usually settles down within 5-10 minutes and occurs in 1 in 3 patients. Very occasionally, patients develop a more severe reaction, with shortness of breath, vomiting and a rash. This may need medication, or even hospital treatment, and occurs in 1 in 2500 patients (0.04%).

Some people experience abdominal discomfort and bloating during the test which can occur when the gas passes into the colon. The carbon dioxide gas we use is absorbed quickly by the body and the symptoms pass quickly when the tube is removed from the rectum and you have been to the toilet.

The muscle relaxant Buscopan can give you a dry mouth and make your vision slightly blurred, which lasts about 15-20 minutes. Very rarely, patients may develop pain or redness of the eyes within 24 hours following the test. If this occurs, you should go immediately to the Accident and Emergency Department for a check up. This is very rare and has not happened in any of our patients undergoing CT colonography so far. There is a tiny risk of making a small hole in the bowel, a perforation. It occurs in approximately 1 in 3000 examinations. Most cases do not require treatment, but sometimes you may require hospital admission under a surgeon for observation and treatment with antibiotics or occasionally surgery.

Despite these small risks, your doctor has determined that the risk of missing a potentially serious disorder by not having this investigation is considerably greater. If you are concerned about any of these risks or have any questions, please speak to your consultant.
Alternatives:
Your consultant has recommended this procedure as being the best option for you. However, there are 2 alternative ways of looking at the large bowel:

- Barium enema, another type of x-ray examination where air and a liquid containing Barium will be introduced into the large bowel via a tube inserted into your back passage.

- Endoscopy, a procedure where a thin tube with a camera on the end is passed into the back passage to allow the inside of your large bowel to be seen.

Any alternative procedures will already have been discussed with you as they depend on your individual circumstances. There is also the option of not receiving any treatment at all. If you would like more information please speak to your consultant or one of the nurses caring for you.

National Bowel Cancer Screening Programme patients
The examination usually offered to patients from the National Bowel Cancer Screening Programme (NBCSP) is a colonoscopy, as this test is considered to offer the best chance of detecting a small cancer. It is likely that you have been offered a CT Colonography because colonoscopy is not a suitable test for you. As a screening patient, you will not be suffering from any symptoms and so need to consider the risks associated with any test with particular care. Although having a CT Colonography involves exposure to radiation, the examination will be performed using a low dose scanning technique and without intravenous contrast (dye). This reduces the risks from radiation but also limits the amount of information obtained on structures outside the bowel. The test is still quite sensitive, and will detect larger bowel related polyps (growths) (especially above 9mm) and abnormalities outside the bowel. Occasionally when we are not confident about a possible abnormality, we may then proceed to a normal dose CT scan with injection of dye. If you wish to discuss the risks, benefits or alternatives further, please contact the NBCSP Screening Practitioner on 01246 512806.

When will I get the results?
The images need to be examined in detail, so we cannot give you the results straightaway. You should have been told about getting your results when you were referred for the scan. However, our staff will check that you know how you will get your results, and offer any advice they can.

Student Training:
A student radiographer may be present during your examination. If you would prefer them not to attend, please let the radiographer know at the start of your examination.

If you have any queries, or require further information please contact the Imaging Appointments Office on
Tel. No. 01246 512627 (Monday to Friday – 8.15 am to 6.15 pm)

Any external organisations and websites included here do not necessarily reflect the views of the Chesterfield Royal Hospital NHS Foundation Trust, nor does their inclusion constitute a recommendation.
Appendix A

Information for patients with diabetes attending for CT Colonography


Please see overleaf for instructions about taking your insulin.

Before your procedure;
As you have diabetes, it is important that some of the clear fluids before your examination contain carbohydrates/sugar.
These should be used to ensure that your blood sugar levels stay above 4mmol/L.

The following list should help you.
Each of the following contains 10g of carbohydrate;
• Ordinary Lemonade (Not diet) – 200ml
• Ordinary Squash – 100ml (made up ¾ water ¼ squash)
• Ordinary Coke – 100ml
• Ordinary Lucozade – 100ml.

Test your blood sugar regularly and treat any level below 4mmol/L with a sugary drink as above

Whilst at the hospital;
• When you arrive you will have your blood sugar checked.
• Any concerns about your blood sugar level will be discussed with you.

Driving.
If you have diabetes and take Insulin injections you are at an increased risk of hypoglycaemia (low blood sugars) when not eating before your procedure.

Please test your blood sugar regularly and if possible do not drive to and from your appointment.

If you require further information please contact the Hospital Diabetes Team 01246 512113 or the Imaging Appointments Office on 01246 512627.
Please follow the diet described and use the table below to adjust your medication.

<table>
<thead>
<tr>
<th>Usual insulin</th>
<th>Day before the examination</th>
<th>Day of the examination</th>
</tr>
</thead>
</table>
| **Once daily (evening):**  
e.g. Lantus/Glargine,  
Levemir/Detemir. | Take normal dose | Take normal dose |
| **Once daily (morning):**  
e.g. Lantus/Glargine or  
Levemir/Detemir. | Take normal dose | Take normal dose |
| **Twice daily isophane**  
(morning & evening):  
e.g. Insulatard, Humulin I | Take normal morning dose. Take half normal evening dose | Take half normal morning dose after the procedure.  
Take normal evening dose. |
| **Once daily isophane**  
(morning or evening):  
e.g. Insulatard, Humulin I | | |
| **Twice daily: Mixed insulin**  
e.g. Novomix 30, Humulin M3,  
Humalog Mix 25,  
Humalog Mix 50 | Take normal morning dose. Take half normal evening dose | Take half normal morning dose after the procedure.  
Take normal evening dose. |
| **Basal bolus regimens: Long and short acting insulin**  
e.g. novorapid tds and glargine od, | Do not take short acting insulin whilst not eating | Continue basal/long-acting insulin unchanged.  
Do not take morning short-acting insulin and take usual short acting dose with next meal. |
| **3 times daily mixed insulin:**  
e.g. Novomix 30, Humulin M3 | Take normal morning and lunchtime doses. Do not take evening dose | Do not take morning dose and take normal lunch- time dose with first post procedure meal.  
Resume usual insulin with evening meal |
| **Insulin pump therapy or other insulin regimes** | Encourage patient to self manage.  
For advice contact the diabetes team | |


Information for patients with diabetes attending for CT Colonography

Guidance for adjustment of tablets and non-insulin injections.

Please see overleaf for instructions about taking your diabetes medications.

Before your procedure;
As you have diabetes, it is important that some of the clear fluids before your examination contain carbohydrates/sugar.
These should be used to ensure that your blood sugar levels stay above 4mmol/L.

The following list should help you.
Each of the following contains 10g of carbohydrate;
- Ordinary Lemonade (Not diet) – 200ml
- Ordinary Squash – 100ml (made up ¾ water ¼ squash)
- Ordinary Coke – 100ml
- Ordinary Lucozade – 100ml.

Test your blood sugar regularly and treat any level below 4mmol/L with a sugary drink as above

Whilst at the hospital;
- When you arrive you will have your blood sugar checked.
- Any concerns about your blood sugar level will be discussed with you.

Driving.
If you have diabetes and take Gliclazide tablets you are at an increased risk of hypoglycaemia (low blood sugars) when not eating before your procedure.

Please test your blood sugar regularly and if possible do not drive to and from your appointment.

If you require further information please contact the Hospital Diabetes Team 01246 512113 or the Imaging Appointments Office on 01246 512627.
Please follow the diet as described and use the table below to adjust your medication.

<table>
<thead>
<tr>
<th>Usual tablets</th>
<th>Day before the examination</th>
<th>Day of the examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acarbose</td>
<td>Do not take whilst not eating.</td>
<td>Do not take whilst not eating.</td>
</tr>
<tr>
<td>Metformin</td>
<td>Do not take whilst not eating.</td>
<td>Do not take whilst not eating.</td>
</tr>
<tr>
<td>Sulphonylureas</td>
<td>Once daily am take as normal. Twice daily do not take pm</td>
<td>Do not take whilst not eating.</td>
</tr>
<tr>
<td>(glibenclamide, glicazide, glipizide etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pioglitazone</td>
<td>Do not take whilst not eating.</td>
<td>Do not take whilst not eating.</td>
</tr>
<tr>
<td>DPP-4 inhibitor</td>
<td>Do not take whilst not eating.</td>
<td>Do not take whilst not eating.</td>
</tr>
<tr>
<td>(Sitagliptin, Vidaagliptin, Saxagliptin)</td>
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<tr>
<td>GLP-1 agonists</td>
<td>Do not take for 48 hours before procedure</td>
<td>Do not take whilst not eating.</td>
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<tr>
<td>Exenatide/Byetta injections</td>
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<tr>
<td>Liraglutide injections</td>
<td>Do not take for 48 hours before procedure</td>
<td>Do not take whilst not eating.</td>
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