

CT Patient Prep Information



Imaging Services

Cannon Memorial Hospital
Watauga Medical Center

Table Weight Limits for each facility		
	Cannon Memorial Hospital	Watauga Medical Center
MRI 1 (High Field)	350 lbs.	440 lbs.
MRI 2 (Open)		490 lbs.
CT 1 (VCTXT)		500 lbs.
CT 2		450 lbs.
CT Scan Table	450 lbs.	
Diagnostic x-ray room 1	300 lbs.	300 lbs.
Diagnostic x-ray room 2		300 lbs.
Diagnostic x-ray room 3		300 lbs.
Diagnostic ER x-ray		460 lbs.
Nuclear Medicine	400 lbs.	440 lbs.
Ultrasound		500 lbs.
Ultrasound Stretcher	500 lbs.	
Outpatient/Lab Center X-ray		460 lbs.
Dexa scan		350 lbs.
Dexa table	300 lbs.	

Scheduling / General information

- All Imaging exams must be scheduled with the scheduling department with exception to some diagnostic radiology exams.
- To schedule an appointment please contact our scheduling department at 828-268-9037 between the hours of 8:00am-5:00pm. If you reach the voicemail please leave a detailed message and someone will answer your call as soon as possible.
- On the day of your exam please arrive 15 minutes prior to your exam time to register at outpatient registration.
- To have an imaging exam done there must be a physicians order.
- According to the patient preps for certain exams, lab results should be available prior to the exam.

If you have any questions about your exam please call the Imaging Department

Watauga Medical Center: (828) 262-4153

Watauga Medical Outpatient Imaging/Lab Center:
(828) 266-2498

Cannon Memorial Hospital: (828) 737-7620

Blowing Rock Hospital: (828)295-3136 ext. 518

General description of each Imaging department

- **Radiography (“X-Ray”)** – Uses x-rays to create images.

X-rays created in an x-ray tube pass through a patient to reach the ‘image receptor’ (‘cassette’). The cassette is then inserted into a computed radiography ‘reader’ that converts the energy absorbed by that cassette into a visible image seen on a computer. Radiography best visualizes bones, lungs, and contrast-filled organs (i.e. GI tract, kidneys). Radiography can be used in conjunction with or to enhance another modality, i.e. injecting a joint with contrast before an MRI is obtained or injecting contrast into the spinal canal before a CT is obtained. The contrast media used is usually barium, iodine, or air, depending on the study being performed.

- **Computed Tomography (“CT”)** – Uses x-rays to create images.

Multiple x-rays of ‘slices’ or planes of the body are obtained and reconstructed by a computer to form an image. CT is frequently performed for patients with trauma, kidney stones, cardiac issues, suspected stroke or pulmonary embolism, or abdominal pain. Biopsies are also frequently performed using CT to guide the radiologist. The contrast media used can be orally-ingested barium, IV iodine, or rectally-induced air, depending on the area to be imaged. CT can be used to visualize bone or soft tissue.

- **Magnetic Resonance Imaging (“MRI”)** – Uses a strong magnetic field and radio waves to create images. The patient lies on a table within a strong magnetic field with a ‘coil’ placed over the body part of interest. The body emits ‘signals’ in response to changes in the magnetic fields, which are transmitted by the coil to a computer. The computer converts these signals to images of planes (‘slices’) of the body. Gado-

linium is the most frequently used contrast agent used. MRI is best for visualization of soft tissues.

- **Ultrasound (“Sonography”)** – Uses sound waves to create images. High-frequency sound waves are sent through the patient’s body and the ‘echoes’ are converted by a computer into images. The patient may be asked to be NPO or have a full bladder so that these ‘echoes’ may be enhanced. Ultrasound is often used to guide biopsies of soft tissue organs. Ultrasound is used to visualize soft tissue structures.

- **Nuclear Medicine** – Uses ingested or injected radioactive materials to create images. The patient is given either an orally or intravenously administered radioisotope that targets a specific part of the body. The patient is then (after a specified period of time) placed under a ‘camera’ which detects the radiation emitted by the patient’s body. A computer then converts those detections to an image. Nuclear medicine is used to assess a specific system function and is not used to image anatomy.

- **Mammography** – Uses x-rays to create images of the breast. X-rays are produced in an x-ray tube, which pass through a patient’s breast to a detector. The detector absorbs the x-rays and converts them to an electrical signal which is then converted by a computer into an image. It is used as a screening exam for detection of breast cancer and also for diagnosis of breast lumps, microcalcifications, etc. It may also be used to guide placement of localization devices such as wires or needles in a breast prior to surgery, as well as to image breast tissue removed during surgery. Watauga Medical Center only offers mammography at Outpatient Imaging/Lab Center. Cannon Memorial does mammography at the hospital.

- **Bone Densitometry (“Dexa”)** – Uses x-rays to measure bone density. A ‘pencil-beam’ (tightly restricted x-ray beam) is used to scan the lower back and the hip. The beam passes through the body and a detector absorbs the energy of the x-ray beam. That energy is then converted to a non-diagnostic image and a numerical value, providing a calculation of bone density. That calculation is also compared to other age groups and to previous scans a patient may have had. This modality is only used to diagnose osteoporosis or osteopenia. There is not a preparation prior to this exam. Watauga Medical Center only offers Dexa scans at the Outpatient Imaging/Lab Center. Cannon Memorial offers Dexa scans at the hospital.

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What is CT Scanning?

CT scanning—sometimes called CAT scanning—is a noninvasive, painless medical test that helps physicians diagnose and treat medical conditions.

CT imaging uses special x-ray equipment to produce multiple images or pictures of the inside of the body and a computer to join them together in cross-sectional views of the area being studied. The images can then be examined on a computer monitor or printed.

CT scans of internal organs, bone, soft tissue and blood vessels provide greater clarity than conventional x-ray exams

What does the equipment look like?

The CT scanner is typically a large machine with a hole in the center. You will lie on a table which slides into and out of this hole. The x-ray tube and electronic x-ray detectors rotate around you. They are opposite each other in a ring, called a gantry. The computer workstation that processes the imaging information is located in a separate room.

How does the procedure work?

In many ways CT scanning works very much like other x-ray examinations. X-rays are a form of radiation—like light or radio waves—that can be directed at the body. Different body parts absorb the x-rays in varying degrees.

With CT scanning, numerous x-ray beams and a set of electronic x-ray detectors rotate around you, measuring the amount of radiation being absorbed throughout your body. At the same time, the examination table is moving through the scanner, so that the x-ray beam follows a spiral path. A special computer program processes this series of pictures, or slices of your body, to create two-dimensional cross-sectional images, which are then displayed on a monitor.

CT imaging is sometimes compared to looking into a loaf of bread by cutting the loaf into thin slices. When the image slices are reassembled by computer software, the result is a very detailed multidimensional view of the body's interior.

Refinements in detector technology allow new CT scanners to obtain multiple slices in a single rotation. These scanners, called “multislice CT”

or “multidetector CT,” allow thinner slices to be obtained in a shorter period of time, resulting in more detail and additional view capability. Watauga Medical Center has two scanners, a 4 “slice” scanner and a 64 “slice” scanner. Cannon Memorial Hospital has one scanner, which is a 16 “slice” scanner.

Modern CT scanners are so fast that they can scan through large sections of the body in just a few seconds. Such speed is beneficial for all patients but especially children, the elderly and critically ill.

For some CT exams, a contrast material is used to enhance visibility in the area of the body being studied.

How should I prepare for the CT scan?

You should wear comfortable, loose-fitting clothing to your exam. You may be given a gown to wear during the procedure.

Metal objects including jewelry, eyeglasses, dentures and hairpins may affect the CT images and should be left at home or removed prior to your exam. You may also be asked to remove hearing aids and removable dental work.

You may be asked not to eat or drink anything for several hours beforehand, especially if a contrast material will be used in your exam. You should inform your physician of any medications you are taking and if you have any allergies, especially to contrast materials.

Also inform your doctor of any recent illnesses or other medical conditions, and if you have a history of heart disease, asthma, diabetes, kidney disease or thyroid problems. Any of these conditions may increase the risk of an unusual adverse effect.

Women should always inform their physician or technologist if there is any possibility that they are pregnant. Please arrive 15 minutes prior to your appointment time and register in the Admissions Department. If you need to reschedule your appointment please call (828)268-9037. The need for CT is in high demand. CT is a high volume department, providing outpatient, inpatient, and emergency services. We strive to provide the best possible care for all of our patients and will notify you of any delays in your appointment time.

How is the CT scan performed?

The technologist begins by positioning you on the CT examination table, usually lying flat on your back or possibly on your side or on your stomach. Straps and pillows may be used to help you maintain the correct position and to hold still during the exam.

If a contrast material is used, it will be swallowed, injected through an intravenous line (IV) or administered by enema, depending on the type of examination.

Next, the table will move quickly through the scanner to determine the correct starting position for the scans. Then, the table will move slowly through the machine as the actual CT scanning is performed.

You may be asked to hold your breath during the scanning.

What will I experience during and after the procedure?

Most CT exams are painless, fast and easy.

If the contrast material is swallowed, you may find the taste mildly unpleasant; however, most patients can easily tolerate it. This oral contrast material allows the radiologist to visualize your GI tract.

Many patients also receive iodinated contrast material intravenously (injected into a vein) to help evaluate blood vessels and organs such as the liver, kidneys and pancreas. If an intravenous contrast material is used, you will feel a slight pin prick when the needle is inserted into your vein. You may have a warm, flushed sensation during the injection of the contrast materials and a metallic taste in your mouth that lasts for a few minutes. Occasionally, a patient will develop itching and hives, which can be relieved with medication. If you become light-headed or experience difficulty breathing, you should notify the technologist or nurse, as it may indicate a more severe allergic reaction. After the intravenous contrast injection you will be asked to remain in the Imaging Department for 30 minutes so you can be monitored for any signs of an allergic reaction.

When you enter the CT scanner, special lights may be used to ensure that you are properly positioned. With modern CT scanners, you will hear only slight buzzing, clicking and whirring sounds as the CT scanner revolves around you during the imaging process. During the scan you will be given special breathing instructions to limit motion on the CT images.

You will be alone in the exam room during the CT scan, however, the technologist will be able to see, hear and speak with you at all times.

With pediatric patients, a parent may be allowed in the room but will be required to wear a lead apron to prevent radiation exposure.

Who interprets the results and how do I get them?

A radiologist, a physician specifically trained to supervise and interpret radiology examinations, will analyze the images and send a signed report to your primary care or referring physician, who will share the results with you. This process usually takes 48 hours.

How to prepare for specific exams...

CT oral contrast material should not be altered in any way. (Do not mix it with any other liquid or pour it over ice.)

If your CT scan is ordered "with contrast" or "with and without contrast," you should not have anything to eat 4 hours prior to your exam. You may have clear liquids until exam time. If you are over 60 years of age or are diabetic, you will need lab work done to test your kidney function prior to receiving intravenous contrast material. This lab work needs to be done within 4 weeks of your exam. If you have not had any lab work done within this timeframe, contact your physician's office for the appropriate lab orders.

If your physician has ordered a CTA, this refers to CT Angiography. This exam allows the radiologist to examine specific arteries. You should not have anything to eat for 4 hours prior to your exam. You may have clear liquids until exam time. You should not drink oral contrast material.

If you are having.....

CT Abdomen "without contrast"- Drink 1/2 bottle of oral contrast material 1 hour prior to your exam. Bring the remaining oral contrast material with you to the hospital. You will be asked to drink this once you are in the CT suite. Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Abdomen "with contrast"- Drink 1/2 bottle of oral contrast material 1 hour prior to your exam. Bring the remaining oral contrast material with you to the hospital. You will be asked to drink this once you are in the CT suite. Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Abdomen "with and without contrast"- Drink 1/2 bottle of oral contrast material 1 hour prior to your exam. Bring the remaining oral contrast material with you to the hospital. You will be asked to drink this once you are in the CT suite. Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Appendix- No prep or diet restrictions.

CT Brain "without contrast" (also called CT Head)- No prep or diet restrictions.

CT Brain with contrast- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Brain "with and without contrast"- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Cervical Spine- No prep or diet restrictions.

CT Chest Limited- No prep or diet restrictions.

CT Chest High Resolution- No prep or diet restrictions.

CT Chest "without contrast"- No prep or diet restrictions.

CT Chest "with contrast"- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Chest "with and without contrast"- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Head- see "CT Brain"

CT Lower Extremity (includes ankle, foot, lower leg, etc.)- No prep or diet restrictions.

CT Lumbar Spine "without contrast"- No prep or diet restrictions.

CT Lumbar Spine post Lumbar Myelogram- Refer to Myelogram Protocol.

CT Maxillofacial Bones "without contrast"- No prep or diet restrictions.

CT Maxillofacial Bones "with contrast"- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Maxillofacial Bones with and without contrast - Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Mini Sinus (also called CT Sinuses Limited)- No prep or diet restrictions.

CT Orbits "without contrast"- No prep or diet restrictions.

CT Orbits with contrast - Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Orbits "with and without contrast"- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Pelvis for Bone Detail- No prep or diet restrictions.

CT Pelvis "without contrast"- If your appointment is prior to 2:30 p.m.: Drink 1 bottle of oral contrast material at bedtime the night before the exam and 1/2 bottle of oral contrast material 1 hour prior to the exam. Bring the remaining oral contrast material with you to the hospital. You will be asked to drink this once you are in the CT suite. Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time. If your appointment is after 2:30 p.m.: Drink 1 bottle of oral contrast material at 8:00 the morning of your exam and 1/2 bottle of oral contrast material 1 hour prior to the exam. Bring the remaining oral contrast material with you to the hospital. You will be asked to drink this once you are in the CT suite. Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Pelvis "with contrast"- If your appointment is prior to 2:30 p.m.: Drink 1 bottle of oral contrast material at bedtime the night before the exam and 1/2 bottle of oral contrast material 1 hour prior to the exam. Bring the remaining oral contrast material with you to the hospital. You will be asked to drink this once you are in the CT suite. Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time. If your appointment is after 2:30 p.m.: Drink 1 bottle of oral contrast material at 8:00 the morning of your exam and 1/2 bottle of oral contrast material 1 hour prior to the exam. Bring the remaining oral contrast material with you to the hospital. You will be asked to drink this once you are in the CT suite. Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Pelvis "with and without contrast"- If your appointment is prior to 2:30 p.m.: Drink 1 bottle of oral contrast material at bedtime the night before the exam and 1/2 bottle of oral contrast material 1 hour prior to the exam. Bring the remaining oral contrast material with you to the

hospital. You will be asked to drink this once you are in the CT suite. Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time. If your appointment is after 2:30 p.m.: Drink 1 bottle of oral contrast material at 8:00 the morning of your exam and 1/2 bottle of oral contrast material 1 hour prior to the exam. Bring the remaining oral contrast material with you to the hospital. You will be asked to drink this once you are in the CT suite. Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Pulmonary Embolus- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Renal Calculus (also called CT Stone Study)- No prep or diet restrictions.

CT Sinuses with Contrast - Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Sinuses "without contrast"- No prep or diet restrictions.

CT Sinuses "with and without contrast"- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Sinuses Limited- see CT Mini Sinus

CT Soft Tissue Neck "without contrast"- No prep or diet restrictions.

CT Soft Tissue Neck with contrast - Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Soft Tissue Neck "with and without contrast"- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Stone Study- see CT Renal Calculus

CT Temporal Bones "without contrast"- No prep or diet restrictions.

CT Temporal Bones with contrast - Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Temporal Bones "with and without contrast"- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Upper Extremity (includes shoulder, clavicle, wrist, hand, etc.)- No prep or diet restrictions.

CTA Abdomen (includes renal arteries, mesenteric arteries, etc.)- Do not

eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CTA Abdominal Aorta with Runoff- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CTA Chest- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CTA Coronary Arteries (also called CT Cardiac)- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time. Do not consume any form of caffeine for 12 hours prior to the exam. Do not take any erectile dysfunction medication for 72 hours prior to the exam. Patient will need to be premedicated with Metoprolol. Please contact CT Department for further instructions at (828) 262-4290. CT Coronary Angiogram scans are performed at Watauga Medical Center.

CTA Head (also called CTA Circle of Willis)- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CTA Neck (also called CTA Carotids)- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CTA Pelvis- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CTA Upper Extremity- Do not eat anything for 4 hours prior to your exam. You may have clear liquids until exam time.

CT Virtual Colonography - Eat a low residue diet for 2 days prior to the exam (See Suggested Menu). On the day before the exam, take Tagitol, Magnesium Citrate, and fluids as directed. Do not eat or drink on the day of exam. CT Virtual Colonography scans are performed at Cannon Memorial Hospital.

Coronary CT Angiogram Patient Information Sheet

Before the Study:

Please follow these instructions in preparation for your exam:

- Inform RN/RT if you have a pacemaker or defibrillator.
- Do not take any erectile dysfunction medication (Viagra, Cialis, Levitra, etc.) for 72 hours prior to your CT scan.
- Do not consume any form of caffeine (coffee, tea, soda, etc.) 12 hours prior to your study.
- Do not take any decongestants 8 hours prior to your study.
- Take the prescribed Metoprolol (Lopressor) pill with 16 ounces of water at bedtime the night prior to your exam and in the morning of your exam. (Inform your physician if you have COPD or asthma prior to taking any beta blockers, such as Metoprolol)
- Do not **eat** for 4 hours prior to your exam, but you may drink clear liquids.
- Arrive at Watauga Medical Center at time instructed by nurse/Physician's office.

During the Study:

- You will have your blood pressure, heart rate, and oxygen level checked before the CT.
- A nurse may give you an additional dose of Metoprolol (Lopressor) prior to the scan.
- To ensure a high quality exam you will need to be perfectly still and hold your breath a few times for a short time (up to 20 seconds).
- You will have EKG leads attached to your chest to monitor your heart rate.
- You may have oxygen (via small tubing placed in your nostrils) to help you hold your breath.
- You may receive one small dissolving nitroglycerine pill or spray under your tongue during the study. This dilates (enlarges) your arteries for a better study.
- You will have contrast (x-ray dye) injected. A needle will be placed in

your right arm inside the elbow area. If you have been told not to have an IV in your right arm (ex. You have had a right mastectomy), inform the technologist and the left arm will be used.

After the study:

- The radiologist will evaluate your study and issue a report to your doctor.
- Drink plenty of fluids, and resume your normal diet.
- Do not take the following diabetic medications for 48 hours after your CT exam: Glucophage, Glucovance, Avandamet, Metaglip, Actoplus Met, Metformin, Fortamet, Diofen, Riomet, and Glumetza.
- Metoprolol slows your heart rate and possibly lowers your blood pressure. It is advisable to rest for the remainder of the day, or until your heart rate returns to its normal level.
- If you feel dizzy or light-headed, lie down and drink plenty of fluids.
- If you feel like you will pass out, or you pass out, medical attention will be given if you are still at Watauga Medical Center. If not you will need to get medical attention at the nearest facility available.
- If you have trouble breathing, swelling of your tongue, itching, or hives this is most likely related to the contrast dye used for the scan. You will need to be evaluated and treated for allergic reaction.
- If you are given nitroglycerin, you may experience a temporary headache. This will go away on its own, but if you wish you may take whatever you normally take for a headache.
- A driver is recommended but not required.

Patient Instructions for Virtual Colonography

The quality of your virtual colonography examination is dependent in part on your bowel preparation. To assure the best possible outcome, this preparation should be taken exactly as directed by your physician. Do not make any substitutions or changes without prior consultation with your doctor. In addition to the instructions contained herein, you should read all product literature accompanying each product. Ask your doctor if you have any questions.

Two Days before your Virtual Colonoscopy

Eat a low residue diet. You may also refer to the attached Suggested Menu sheet.

One Day before your Virtual Colonoscopy

Eat a low residue diet. You may also refer to the attached Suggested Menu sheet.

Be sure to drink all water/fluids as directed

Breakfast:	One bottle of Tagitol V
Lunch:	One bottle of Tagitol V
1:00 p.m.:	8 oz. glass water
2:00 p.m.:	8 oz. glass water
3:00 p.m.:	8 oz. glass water
4:00 p.m.:	8 oz glass water
Dinner (5:00 p.m.):	One bottle Tagitol V
5:30 p.m. :	Magnesium Citrate
6:00 p.m.:	8 oz glass water
7:00 p.m.:	8 oz glass water
7:30 p.m.:	Bisacodyl Tablets
8:00 p.m.:	8 oz glass water
9:00 p.m.:	8 oz glass water
9:30 p.m.:	Nothing to eat or drink

The Day of your Virtual Colonoscopy

Do not eat or drink anything.

Suggested Menu

Dairy:

You may have milk or plain yogurt. **Avoid** yogurt containing fruit skins/ seeds.

Meats:

You may have plainly prepared fish, poultry, and eggs. **Avoid** added fats, gravies, and heavy seasonings.

Potato / Starch:

You may have white rice, spaghetti, noodle/macaroni, and potatoes with no skin. **Avoid** potato skin and brown rice.

Bread / Cereal:

You may have white (refined) breads and saltine crackers. **Avoid** whole grain (graham, cornmeal, bran) breads, corn crackers, cereals and popcorn.

Fruit / Juices:

You may have clear fruit juices and canned fruit (with no skin, seeds or membranes). **Avoid** fresh fruit, raisins, dried fruits, prunes / prune juice and fruit skins/ seeds.

Beverages:

You may drink water, fruit flavored drinks, decaffeinated coffee, tea and carbonated drinks. **Avoid** caffeinated drinks.

Soups:

You may have bouillon / broth, strained soups, soups made with allowed vegetables and meats.

Desserts:

You may have gelatin, fruit ice, and Popsicles (no red colors). **Avoid** coconut, nuts, seeds and hard clear candies.

Miscellaneous:

You may use salt, pepper, jelly, sugar, honey and syrup. **Avoid** cloves, garlic, seed spices, barbecue sauce, mustard, jam, peanut butter, mayonnaise and marmalade.