# Renal Ultrasound

Renal ultrasound imaging is safe, noninvasive, and does not use radiation.

This exam requires little to no special preparation. The ultrasound technologist may ask you to drink water before the exam to fill your bladder. Leave jewelry at home and wear loose, comfortable clothing. You may need to wear a gown.

## What is a Renal Ultrasound?

Renal ultrasound is a noninvasive medical exam that uses sound waves to produce pictures of the kidneys (http://www.radiologyinfo.org) and bladder (http://www.radiologyinfo.org) . It helps doctors diagnose and treat urinary conditions. It is safe and painless. Ultrasound imaging is also known as sonography (http://www.radiologyinfo.org) . It uses a small probe called a transducer and gel placed directly on the skin. High-frequency sound waves travel from the probe through the gel into the body. The probe collects the sound waves that bounce back. A computer uses those sound waves to create an image. Since ultrasound captures images in real-time, it can show the body's internal organs and structures moving. The images can also show blood flowing through blood vessels.

A Doppler ultrasound exam may be part of a renal ultrasound exam. Doppler ultrasound is a special ultrasound technique that looks at blood in the body. It allows the doctor to see and evaluate blood flow to your kidneys.

## What are some common uses of the procedure?

Doctors order renal ultrasound to check the kidneys and bladder.

Ultrasound can help identify:

- Abnormalities in the size or location of your kidneys
- Signs of injury or damage to your kidneys, including findings of kidney infection
- *Kidney stones (https://www.radiologyinfo.org/en/info/stones-renal)* , *cysts (https://www.radiologyinfo.org/en/info/renal-cyst)* , or tumors, including if a stone is blocking your kidney from draining normally
- Problems with your bladder, including urinary retention. Urinary retention is when your bladder does not fully empty when you try and pee.

Your doctor may also use renal ultrasound to help guide putting a needle into your kidney during a biopsy.

Doppler ultrasound of the kidneys helps the doctor to see and evaluate:

- Blood flow to your kidney - including narrowing or clots in your blood vessels
- Tumors of the kidney

Your doctor may use Doppler ultrasound to evaluate high blood pressure that is not responding to medication and lifestyle changes.

## Who interprets the results and how do I get them?

If your exam is being done in a radiology office then a radiologist, a doctor trained to supervise and interpret radiology exams, will analyze the images. The radiologist will send a signed report to the doctor who requested the exam. Your doctor will then share the results with you. In some cases, the radiologist may discuss results with you after the exam.

You may need a follow-up exam. If so, your doctor will explain why. Sometimes a follow-up exam further evaluates a potential issue with more views or a special imaging technique. It may also see if there has been any change in an issue over time. Follow-up exams are often the best way to see if treatment is working or if a problem needs attention.

## What are the benefits vs. risks?

### Benefits

- Most ultrasound scanning is noninvasive (no needles or injections).
- Ultrasound is widely available, easy to use, and less expensive than most other imaging methods.
- Ultrasound is extremely safe and does not use radiation.
- Ultrasound gives a clear picture of soft tissues that do not show up well on x-ray images.
- Ultrasound provides real-time imaging. This makes it a useful tool for guiding minimally invasive procedures such as needle biopsies and fluid aspiration.
- Renal/kidney ultrasound can help to identify and evaluate a variety of kidney disorders without x-ray exposure.
- Occasionally, an ultrasound exam may be briefly uncomfortable, but it should not be painful.

### Risks

- Standard diagnostic ultrasound has no known harmful effects on humans.

## What are the limitations of Renal Ultrasound Imaging?

The presence of gas in the abdomen may affect image quality.

Large patients are more difficult to image by ultrasound. This is because greater amounts of tissue weaken the sound waves as they pass deeper into the body and need to return to the transducer for analysis. This results in pictures that may not be clear or good quality.

If a child is unable to hold still during the exam, the image quality may be affected.

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